

Board Members

Mark A. Murphy, Chairman Gene Hernandez. Vice Chairman Lisa A. Bartlett Doug Chaffee Barbara Delgleize Andrew Do Katrina Foley Brian Goodell Patrick Harper Michael Hennessey Steve Jones Fred Jung Joseph Muller Tam Nguyen Vicente Sarmiento Donald P. Wagner Ryan Chamberlain

Orange County Transportation Authority Board Room 550 South Main Street Orange, California Monday, October 10, 2022 at 9:00 a.m.

Any person with a disability who requires a modification or accommodation in order to participate in this meeting should contact the Orange County Transportation Authority (OCTA) Clerk of the Board's office at (714) 560-5676, no less than two business days prior to this meeting to enable OCTA to make reasonable arrangements to assure accessibility to this meeting.

Agenda Descriptions

Agenda descriptions are intended to give members of the public a general summary of items of business to be transacted or discussed. The posting of the recommended actions does not indicate what action will be taken. The Committee may take any action which it deems to be appropriate on the agenda item and is not limited in any way by the notice of the recommended action.

Public Availability of Agenda Materials

All documents relative to the items referenced in this agenda are available for public inspection at www.octa.net or through the Clerk of the Board's office at the OCTA Headquarters, 600 South Main Street, Orange, California.



Meeting Access and Public Comments on Agenda Items

Members of the public can either attend in-person (subject to OCTA's Coronavirus (COVID-19) safety protocols) or listen to live audio streaming of the Board and Committee meetings by clicking the below link:

https://www.octa.net/About-OCTA/Who-We-Are/Board-of-Directors/Live-and-Archived-Audio/

Members of the public may address the Board of Directors regarding any item in two ways:

In-Person Comment

Members of the public may attend in-person (subject to OCTA's COVID-19 safety protocols) and address the Board regarding any item. Members of the public will be required to complete a COVID-19 symptom and temperature screening.

Please complete a speaker's card and submit it to the Clerk of the Board (or notify the Clerk of the Board the item number on which you wish to speak). Speakers will be recognized by the Chairman at the time the agenda item is to be considered. A speaker's comments shall be limited to three minutes.

Written Comment

Written public comments may also be submitted by emailing them to <u>ClerkOffice@octa.net</u>, and must be sent by **5:00 p.m. the day prior to the meeting**. If you wish to comment on a specific agenda Item, please identify the Item number in your email. All public comments that are timely received will be part of the public record and distributed to the Board. Public comments will be made available to the public upon request.

Call to Order

Invocation

Director Hennessey

Pledge of Allegiance

Director Muller



Special Calendar

There are no Special Calendar matters.

1. Closed Session

A Closed Session will be held as follows:

Pursuant to Government Code Section 54957.6 to discuss negotiations with Teamsters Local 952 regarding the maintenance unit. The lead negotiator for the Orange County Transportation Authority is Maggie McJilton, Executive Director of People and Community Engagement and Teamsters Local 952 representative, Frank Sevilla.

Consent Calendar (Items 2 through 10)

All matters on the Consent Calendar are to be approved in one motion unless a Board Member or a member of the public requests separate action on a specific item.

Orange County Transportation Authority Consent Calendar Matters

2. Approval of Minutes

Recommendation

Approve the Orange County Transportation Authority and affiliated agencies' regular meeting minutes of September 26, 2022.

3. Orange County Transportation Authority Natural Hazard Mitigation Plan Matt Ankley/Jennifer L. Bergener

Overview

As part of a comprehensive emergency management program, the Orange County Transportation Authority has developed a Natural Hazard Mitigation Plan. This plan evaluates natural hazard impacts to the Orange County Transportation Authority's operations and provides mitigation strategy recommendations to reduce or eliminate risks from those identified hazards.



Recommendations

- A. Adopt the Orange County Transportation Authority Natural Hazard Mitigation Plan, as approved by the California Office of Emergency Services and the Federal Emergency Management Agency.
- B. Direct staff to implement the annual Natural Hazard Mitigation Plan review to ensure the plan remains accurate and in compliance with state and federal regulations.
- C. Direct staff to update the Natural Hazard Mitigation Plan every five years to maintain compliance with the state and federal agency requirements.
- 4. Orange County Transportation Authority Investment and Debt Programs Report - August 2022 Robert Davis/Andrew Oftelie

Overview

The Orange County Transportation Authority has a comprehensive investment and debt program to fund its immediate and long-term cash flow demands. Each month, the Treasurer submits a report detailing investment allocation, performance, compliance, outstanding debt balances, and credit ratings for the Orange County Transportation Authority's debt program. This report is for the month ending August 31, 2022.

Recommendation

Receive and file as an information item.

5. Orange County Transportation Authority Code of Conduct Karen DeCrescenzo/Maggie McJilton

Overview

As required by the Federal Transit Administration and organizational best practices, the Orange County Transportation Authority maintains a written code of conduct to provide direction to officers, employees, agents, and members of the Board of Directors on appropriate and professional behavior in conducting the business of the Orange County Transportation Authority.



Recommendation

Receive and file as an information item.

6. Amendments to the Master Plan of Arterial Highways Ivy Hang/Kia Mortazavi

Overview

The Orange County Transportation Authority administers the Master Plan of Arterial Highways, including the review and approval of amendments requested by local agencies. The City of Anaheim has requested an amendment to the Master Plan of Arterial Highways that is recommended for approval. An update on the conditionally approved Master Plan of Arterial Highways amendments is also provided.

Recommendations

- A. Conditionally approve the following amendments to the Master Plan of Arterial Highways for the facilities listed below within the City of Anaheim:
 - 1. Remove Douglass Road, a secondary (four-lane, undivided) arterial, between Cerritos Avenue and Katella Avenue from the Master Plan of Arterial Highways network.
 - 2. Remove Cerritos Avenue, a secondary (four-lane, undivided) arterial, between Sunkist Street and Douglass Road from the Master Plan of Arterial Highways network.
 - 3. Add River Road as a primary (four-lane, divided) arterial from Katella Avenue to Ball Road to the Master Plan of Arterial Highways network.

The proposed amendment will become final, contingent upon the Orange County Transportation Authority receiving documentation that the City of Anaheim has amended its general plan and has complied with the requirements of the California Environmental Quality Act.



If the City of Anaheim does not update its general plan within three years to reflect the Master Plan of Arterial Highways amendment, the contingent approval of this requested amendment will expire but can be returned to the Orange County Transportation Authority Board of Directors for reconsideration and action.

If the original proposed Master Plan of Arterial Highways amendment is modified as a result of the California Environmental Quality Act and/or general plan amendment process, the modified Master Plan of Arterial Highways amendment shall be returned to the Orange County Transportation Authority Board of Directors for consideration and action.

- B. Direct the Executive Director of Planning, or his designee, to file a Notice of Exemption from the California Environmental Quality Act in support of the Master Plan of Arterial Highways amendment.
- C. Receive and file a status report on the active Master Plan of Arterial Highways amendments.

Orange County Local Transportation Authority Consent Calendar Matters

7. Amendment to Agreement for Program Management Consultant Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605 Jeff Mills/James G. Beil

Overview

On December 10, 2012, the Orange County Transportation Authority selected Parsons Transportation Group, Inc., to provide program management consultant services for the design-build delivery of the Interstate 405 Improvement Project from State Route 73 to Interstate 605 for a term of six and a half years. An amendment to the existing agreement is needed to extend the term and provide additional services through the completion and closeout of the Interstate 405 Improvement Project.



Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 34 to Agreement No. C-2-1513 between the Orange County Transportation Authority and Parsons Transportation Group, Inc., in the amount of \$5,367,969, for additional program management consultant services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605, and to extend the term of the agreement for an additional 13 months through June 30, 2024. This will increase the maximum cumulative obligation of the agreement to a total contract value of \$138,170,682.

8. Cooperative Agreement with the California Department of Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road Niall Barrett/James G. Beil

Overview

The Orange County Transportation Authority proposes to enter into a cooperative agreement with the California Department of Transportation for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.

Recommendations

- A. Authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-2-2807 between the Orange County Transportation Authority and the California Department of Transportation, in the amount of \$12,335,000, for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.
- B. Authorize the use of up to \$0.79 million in Surface Transportation Block Grant funds for design services for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road in lieu of Measure M2 funding.
- C. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.



9. Amendment to Cooperative Agreement with the Orange County Flood Control District for the Interstate 405 Improvement Project Jeff Mills/James G. Beil

Overview

On May 9, 2016, the Orange County Transportation Authority Board of Directors approved Cooperative Agreement No. C-5-3617 with the Orange County Flood Control District for support services for the Interstate 405 Improvement Project. An amendment to the cooperative agreement is required for additional support services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 2 to Cooperative Agreement No. C-5-3617 between the Orange County Transportation Authority and the Orange County Flood Control District, in the amount of \$500,000, for additional project support services for the Interstate 405 Improvement Project. This will increase the agreement amount to \$2,000,000.

10. Approval to Release Request for Proposals for Public Outreach for the State Route 91 Improvement

Chris Boucly/Maggie McJilton

Overview

Staff is requesting Board of Directors' approval to release a request for proposals for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue. These services are needed for community outreach efforts during the pre-construction and construction phases of the project. A draft request for proposals has been developed to initiate a competitive procurement process to retain a public outreach consultant.

Recommendations

A. Approve the proposed evaluation criteria and weightings for Request for Proposals 2-2796 for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.



- B. Approve the release of Request for Proposals 2-2796 to select a firm to provide public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.
- C. Authorize the use of up to \$1.9 million in 91 Express Lanes funds for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.
- D. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.

Regular Calendar

Orange County Local Transportation Authority Regular Calendar Matters

11. Measure M2 Streets and Roads Program Milestone Francesca Ching/Kia Mortazavi

Overview

Approximately one-third (32 percent) of the voter-approved Measure M2 local transportation sales tax revenue is dedicated to maintaining streets, synchronizing traffic signals, and improving local streets and roads to deliver a safer, more efficient roadway network. In September 2022, the Measure M2 Streets and Roads program surpassed \$1 billion in funding allocations and distributions. This report commemorates this achievement and highlights the related accomplishments and benefits.

Recommendation

Receive and file as an information item.



12. Measure M2 Next 10 Delivery Plan: Market Conditions Key Indicators Analysis and Forecast

Francesca Ching/Kia Mortazavi

Overview

At the direction of the Board of Directors, the Orange County Transportation Authority monitors construction market conditions. Annually, a report on Market Conditions Key Indicators Analysis and Forecast is presented to the Board of Directors to provide insight into potential project delivery cost drivers that could affect the Measure M2 Next 10 Delivery Plan. The last effort was presented to the Board of Directors on October 11, 2021. An updated forecast has been prepared and a presentation on the results of this effort is provided.

Recommendation

Continue to monitor market conditions key indicators and provide updates to the Board of Directors as appropriate.

Orange County Transportation Authority Regular Calendar Matters

13. Long-Range Transportation Plan Workshop Gregory Nord/Kurt Brotcke

Overview

The Long-Range Transportation Plan defines a vision for Orange County's transportation system that reflects established plans and policies and responds to forecasted system needs. This vision also guides the Orange County Transportation Authority's into input the Regional Transportation Plan, prepared by the Southern California Association of Governments. The Measure M2 projects and programs and the Orange County Transportation Authority's public transit services are key elements of the Long-Range Transportation Plan. However, consideration of additional strategies is warranted to ensure that the established goals are addressed. Strategies to fulfill this need are presented for discussion.



Recommendations

- A. Provide input to staff on the Long-Range Transportation strategies and Short-Term Action Plan.
- B. Direct staff to prepare the draft Long-Range Transportation Plan for public review starting November 28, 2022.

Discussion Items

- 14. Public Comments
- **15.** Chief Executive Officer's Report
- 16. Directors' Reports

17. Adjournment

The next regularly scheduled meeting of this Board will be held at **9:00 a.m. on Monday, October 24, 2022** at the Orange County Transportation Authority Headquarters, Board Room, 550 South Main Street, Orange, California.



Call to Order

The Monday, September 26, 2022, regular meeting of the Orange County Transportation Authority (OCTA) and affiliated agencies was called to order by Chairman Murphy at 9:00 a.m. at the OCTA Headquarters, 550 South Main Street, Board Room, Orange, California.

Directors Present:	Mark A. Murphy, Chairman Gene Hernandez, Vice Chairman Lisa A. Bartlett Doug Chaffee Barbara Delgleize Andrew Do Katrina Foley Brian Goodell Patrick Harper Steve Jones Joseph Muller Tam Nguyen Vicente Sarmiento Donald P. Wagner Ryan Chamberlain
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- Via Teleoconference: Fred Jung
- Directors Absent: Michael Hennessey
- Staff Present:Darrell E. Johnson, Chief Executive Officer
Jennifer L. Bergener, Deputy Chief Executive Officer
Andrea West, Interim Clerk of the Board
Gina Ramirez, Clerk of the Board Specialist, Senior
Allison Cheshire, Clerk of the Board Specialist, Senior
James Donich, General Counsel

Special Calendar

1. Presentation of Resolutions of Appreciation for Employees of the Month for September 2022

Resolutions of Appreciation were presented to Kimberly Roberson, Coach Operator, Rudy Lopez, Maintenance, and Sara Grishkewich, Administration, as Employees of the Month for September 2022.



Consent Calendar (Items 2 through 12)

2. Approval of Minutes

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to approve the Orange County Transportation Authority and affiliated agencies' regular meeting minutes of September 12, 2022.

Director Delgleize was not present to vote on this item.

3. Non-Revenue Vehicle Purchases and Assignment, Internal Audit Report No. 22-512

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to direct staff to implement three recommendations provided in Non-Revenue Vehicle Purchases and Assignment, Internal Audit Report No. 22-512.

Director Delgleize was not present to vote on this item.

4. Cooperative Agreement with the Anaheim Transportation Network for Transit Services

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-2-2777 between the Orange County Transportation Authority and Anaheim Transportation Network, in the amount of \$5,713,000, for a term of five years, to establish roles and responsibilities for the distribution of Federal Transit Administration Section 5307 and Section 5339 funds.

Director Delgleize was not present to vote on this item.

5. Amendment to Agreement for System Manager and Business Analyst Support Services

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 1 to Agreement No. C-1-3495 between the Orange County Transportation Authority and Carpe Datum, in the amount of \$158,380, to provide continued system manager and business analyst support services through March 31, 2023. This will increase the maximum obligation of the agreement to a total contract value of \$397,340.

Director Delgleize was not present to vote on this item.



6. Approval to Release Request for Proposals for Information Technology Contracted Technical Staffing

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to:

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 2-2746 to provide information technology contracted technical staffing.
- B. Approve the release of Request for Proposals 2-2746 to provide information technology contracted technical staffing for a five-year term.

Director Delgleize was not present to vote on this item.

7. State Legislative Status Report

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to receive and file as an information item.

Director Delgleize was not present to vote on this item.

8. Federal Legislative Status Report

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to receive and file as an information item.

Director Delgleize was not present to vote on this item.

9. Update on Diversity Outreach and Inclusion Efforts

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to receive and file as an information item.

Director Delgleize was not present to vote on this item.

10. Agreement For Express Lanes Marketing Program Services

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to

A. Approve the selection of Webb and Duffy, Inc., doing business as Truth and Advertising, as the firm to provide Express Lanes marketing program services.



B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-2-2392 between the Orange County Transportation Authority and Webb and Duffy, Inc., doing business as Truth and Advertising, in the amount of \$300,000, for a two-year initial term, with two, two-year option terms to provide Express Lanes marketing program services.

Director Delgleize was not present to vote on this item.

11. Award of Agreement for Janitorial Services

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to:

- A. Approve the selection of Gamboa Services, Inc. doing business as Corporate Image Maintenance as the firm to provide janitorial services at five Orange County Transportation Authority-owned maintenance and operating bases, one park-and-ride facility, and five multimodal transportation centers, throughout Orange County
- Authorize the Chief Executive Officer to negotiate and execute Β. C-2-2438 Agreement No. between the Orange County Transportation Authority and Gamboa Services, Inc., doing business as Corporate Image Maintenance, in the amunt of \$3,670,328, to provide janitorial services at five Orange County Transportation Authority-owned maintenance and operating bases, one park-and-ride facility, and five multimodal transportation centers, throughout Orange County, for a three-year initial term beginning November 1, 2022, with one, two-year option term.

Director Delgleize was not present to vote on this item.

12. Amendment to Agreement for Program Management Consultant Services for Regional Rail Programs

A motion was made by Vice Chairman Hernandez, seconded by Director Do, and following a roll call vote, declared passed 14-0, to Authorize the Chief Executive Officer to negotiate and execute Amendment No. 6 to Agreement No. C-8-1512 between the Orange County Transportation Authority and HDR Engineering, Inc., to provide environmental and design services for the Mile Post 206.8 Track Stabilization Project under the program management consultant services for the Rail Programs Department. This will not increase the maximum obligation or extend the term of the agreement.

Director Delgleize was not present to vote on this item.



Regular Calendar

13. 2022 Measure M2 Sales Tax Forecast

Andy Oftelie, Chief Financial Officer, provided a presentation on this item.

No action was taken on this receive and file as an information item.

Discussion Items

14. Public Comments

Public comments were received from Craig A. Durfey via email on Saturday, September 17, 23, and 24, 2022 and provided to the Board of Directors via email on Sunday, September 24, 2022 at 6:00 p.m.

Public comments were received in-person from Paul Hyek and Peter Warren.

15. Chief Executive Officer's Report

Darrell E. Johnson, Chief Executive Officer, reported on the OCTA 50th Anniversary Celebration.

16. Directors' Reports

There were no Directors' reports.

17. Closed Session

A Closed Session was not scheduled for this meeting.

17. Adjournment

The meeting adjourned at 9:30 a.m. in honor of Coach Operator Adam Gandara who passed away last week.

The next regularly scheduled meeting of this Board will be held at **9:00 a.m. on Monday, October 10, 2022** at the OCTA Headquarters, Board Room, 550 South Main Street, Orange, California.

ATTEST:



October 10, 2022

To: Members of the Board of Directors

- From: Andrea West, Interim Clerk of the Board
- Subject: Orange County Transportation Authority Natural Hazard Mitigation Plan

Executive Committee Meeting of October 3, 2022

Present: Chairman Murphy, Vice Chairman Hernandez, Directors Bartlett, Do, Hennessey, and Muller Absent: Director Jones

Committee Vote

This item was declared passed by the Members present.

Committee Recommendations

- A. Adopt the Orange County Transportation Authority Natural Hazard Mitigation Plan, as approved by the California Office of Emergency Services and the Federal Emergency Management Agency.
- B. Direct staff to implement the annual Natural Hazard Mitigation Plan review to ensure the plan remains accurate and in compliance with state and federal regulations.
- C. Direct staff to update the Natural Hazard Mitigation Plan every five years to maintain compliance with the state and federal agency requirements.



October 3, 2022

From: Darrell E. Johnson, Chief Executive Officer

Subject: Orange County Transportation Authority Natural Hazard Mitigation Plan

Overview

As part of a comprehensive emergency management program, the Orange County Transportation Authority has developed a Natural Hazard Mitigation Plan. This plan evaluates natural hazard impacts to the Orange County Transportation Authority's operations and provides mitigation strategy recommendations to reduce or eliminate risks from those identified hazards.

Recommendations

- A. Adopt the Orange County Transportation Authority Natural Hazard Mitigation Plan, as approved by the California Office of Emergency Services and the Federal Emergency Management Agency.
- B. Direct staff to implement the annual Natural Hazard Mitigation Plan review to ensure the plan remains accurate and in compliance with state and federal regulations.
- C. Direct staff to update the Natural Hazard Mitigation Plan every five years to maintain compliance with the state and federal agency requirements.

Background

Hazard mitigation planning reduces risks to people and property and improves organizational resiliency by minimizing the impact of disasters. Effective hazard mitigation planning also reduces the cost of recovering from a disaster. Hazard mitigation plans identify a comprehensive list of regional hazards that can occur and define a list of mitigation measures related to those hazards. Additionally, for the Orange County Transportation Authority (OCTA) to receive pre- and post-disaster mitigation funds from the Federal Emergency Management Administration (FEMA) or the California Office of Emergency Services (CalOES),

Orange County Transportation Authority Natural Hazard Page 2 Mitigation Plan

OCTA must have a current FEMA-approved Hazard Mitigation Plan (Plan). This Plan must be updated annually and re-approved by CalOES, FEMA, and OCTA's Board of Directors (Board) every five years. With approval by the Board, this will be the first version of the Plan (Attachment A).

Discussion

Hazard mitigation planning can help reduce loss of life and property by minimizing the impact of disasters and is the cornerstone of every community's approach to reducing vulnerabilities to disasters. The Federal Disaster Mitigation Act of 2000, Title 44 Code of Federal Regulations 201.6, requires states and local entities to adopt this approach to reduce losses, become more resilient, and qualify for pre- and post-disaster mitigation funding by way of grants.

The proposed Plan outlines a five-phase approach to developing mitigation recommendations: establishing a Hazard Mitigation Planning Steering Committee comprised of internal and external stakeholders, conducting an inventory of OCTA assets and risk assessment against known natural hazards in the OCTA operating area, engaging OCTA customers and community, development of recommended mitigation strategies to address risks, and the Plan adoption, implementation, and maintenance.

In all, 12 categories of hazards were identified and prioritized. The top four hazards include wildfire, earthquake, epidemic/pandemic, and severe weather. Each hazard section of the Plan details magnitude, frequency, and the potential impact to OCTA operations and its ridership.

From this detailed analysis, 24 mitigation strategies are recommended, spanning several OCTA service areas and in some cases, involving governmental and agency partners throughout the planning area. These strategies address the following eight areas:

- Public education
- Pandemic after-action reports
- Protection of infrastructure from flooding/erosion
- Climate change
- Earthquake/seismic risks
- Multi–hazard protection
- Employee education
- Wildfire mitigation

Orange County Transportation Authority Natural Hazard Page 3 Mitigation Plan

On May 27, 2022, this Plan was reviewed and approved by both FEMA and CalOES and now qualifies OCTA to pursue pre- and post-disaster mitigation funding following Board approval and promulgation of the Plan. The Plan must be reviewed annually by the Hazard Mitigation Planning Steering Committee, revised in 2026, and resubmitted to FEMA and CalOES for approval for OCTA to remain eligible to receive pre- and post-disaster mitigation funding.

Summary

The California Office of Emergency Services and the Federal Emergency Management Agency encourage local agencies to develop and maintain a Hazard Mitigation Plan that can help to reduce the loss of life and property by minimizing the impact of disasters. With the adoption of the Orange County Transportation Authority Natural Hazard Mitigation Plan and direction from the Board of Directors to fully implement the plan, the Orange County Transportation Authority will be eligible to apply for pre- and post-disaster grant funding.

Attachments

- A. Orange County Transportation Authority Natural Hazard Mitigation Plan
- B. Orange County Transportation Authority Natural Hazard Mitigation Plan – Appendix D. Planning Process and Public Outreach

Prepared by:

Matthew ankley

Matt Ankley Emergency Management Specialist, Security and Emergency Preparedness (714) 560-5961

Approved by:

Jennifer L. Bergener Deputy Chief Executive Officer (714) 560-5462

ATTACHMENT A

Orange County Transportation Authority Natural Hazard Mitigation Plan Our mission is to develop and deliver transportation solutions to enhance the quality of life and keep Orange County moving







Orange County Transportation Authority 2022 Natural Hazard Mitigation Plan

October 10, 2022

Prepared for:



Orange County Transportation Authority 550 South Main Street Orange, CA 92868

Draft

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We greatly appreciate their time and dedication.

Executive Summary

The Orange County Transportation Authority's (OCTA) 2022 Hazard Mitigation Plan (HMP) is a stakeholder-driven, risk-informed, and capabilities-based strategic planning document that aspires to identify and recommend prioritized strategies to mitigate the potential impacts of natural hazards within OCTA's service area. This plan demonstrates OCTA's commitment to protecting its customers, assets, and the environment from the effects of natural hazards through mitigation and enables access to federal funding to support this commitment.

Establishing the HMP Steering Committee

To oversee development of the HMP, the OCTA Executive Committee formed an 18-person Steering Committee, listed in Table 0-1. The Steering Committee included personnel from departments across OCTA, local jurisdictions within OCTA's service area, regional bodies, and community-based organizations. The Steering Committee participated in four workshops, beginning July 2020 and ending May 2021. These workshops were:

- Workshop 1: Hazard Mitigation Planning Overview and Project Kickoff
- Workshop 2: Risk Assessment
- Workshop 3: Mitigation Strategy
- Workshop 4: Draft Plan Review

Workshop materials (i.e., agenda, slide deck, sign-in sheet, worksheet(s), and summaries) are available in Appendix D for review, documenting the plan development and decision-making process.

Name	Entity	Title	Department/Office
Matt Ankley	OCTA	Emergency Management Specialist	Chief Executive Office
Katrina Faulkner	ОСТА	Manager, Security, and Emergency Preparedness	Chief Executive Office
Megan Abba	ОСТА	Communications Specialist	Chief Executive Office
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Dinah Minteer	OCTA	Manager of Regional Rail	Operations
Ethan Brown	Orange County Sheriff's Department	Emergency Management Coordinator	Emergency Management Division
Randy Harper	Orange County Sheriff's Department	Emergency Management Coordinator	Emergency Management Division
Rudy Emami	City of Anaheim	Director	Public Works

Table 0-1 – Steering Committee Members

Name	Entity	Title	Department/Office
Mike Davis	City of Irvine	Assistant Director	Transportation
Bill Murray	City of Garden Grove	Director	Public Works
Brett Canedy	City of Mission Viejo	Transportation Analyst	Transportation
Taig Higgins	City Santa Ana	Principal Engineer	Public Works
Anna Lowe	San Diego Association of Governments	Senior Regional Planner	Regional Planning
Dan Phu	ОСТА	Program Manager, Project Development	Planning
Lauren Sato	OCTA	Transit Analyst, Project Development	Planning

Defining the Planning Area

During Workshop 1 – Hazard Mitigation Planning Overview and Project Kickoff, the Steering Committee agreed that the OCTA 2022 HMP planning area should be defined by OCTA's service and assets, which operate in all of Orange County, the southern end of Los Angeles County, and a small portion of northern San Diego County. The Steering Committee agreed that the OCTA HMP planning area should include considerations for customers, staff, property, infrastructure, and the natural environment.

Population numbers and past annual bus ridership numbers inform OCTA planning area service and population trends. In 2019, bus ridership was approximately 35.5 million total boardings for the year and 19 average boardings per day for each bus stop. While OCTA owns and maintains the busses, bus bases, and some transit hubs, cities own the bus stops residing in their jurisdictions. Beyond the extensive bus transportation network, OCTA has a partnership with passenger rail carriers Metrolink and Amtrak, who connect major destinations and employment centers in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties (Orange County Transportation Authority). In this case, OCTA maintains the rail right-of-way in partnership with the shared Metrolink and Amtrak corridors, while local cities own and operate the stations and stops.

OCTA also offers flexible services across the entire area through ride-share and vanpool programs. The OC Streetcar route is projected to be complete in 2024 and will connect to Metrolink, Amtrak's Pacific Surfliner, and the Santa Ana Regional Transportation Center (Orange County Transportation Authority). These and other transportation services link together to furnish numerous options for travel across the planning area. While the OC Streetcar project rail system was started when this plan was approved, certain components (the Maintenance Facility and Tran Wash Facility) were still in development and not part of this plan. Future revisions of the HMP will incorporate these facilities. Figure 10 is a map of the coverage area and critical transportation systems. OCTA assets directly considered in the development of this plan are listed in Table 0-2 on the following page.

Table 0-2 – OCTA Assets

Facility	Latitude	Longitude
Garden Grove Base	33 45' 49" N	117 55' 25" W
Santa Ana Base	33 42' 12" N	117 55' 32" W
Irvine Sand Canyon Base	33 40' 43" N	117 45' 19" W
Irvine Construction Circle Base	33 41' 46" N	117 49' 24" W
Anaheim Base	33 51' 26" N	117 53' 30" W
Newport Beach Transportation Center	33 36' 51" N	117 52' 06" W
Golden West Transportation Center	33 44' 03" N	117 59' 58" W
Laguna Hills Transportation Center	33 36' 25" N	117 42' 20" W
Fullerton Transportation Center	33 52' 10" N	117 55' 20" W
Fullerton Park-and-Ride	33 51' 31" N	117 58' 44" W
Brea Park-and-Ride	33 55' 32" N	117 52' 53" W
Administrative Facility 550/600	33 46' 44" N	117 52' 04" W
Transportation Security Operations Center	33 49' 54" N	117 56' 02" W

Identifying + Assessing Natural Hazard Risks in the Planning Area

The purpose of a risk assessment is to describe the type, location, and extent of every natural hazard that could occur in the planning area. Informed by qualitative and quantitative methods, the risk assessment includes information on previous occurrences of hazard events within the planning area and informs the probability of future hazard events. Additionally, the risk assessment consists of an exposure and vulnerability assessment for OCTA customers, assets, and the planning area's environment.

During Workshop 2 – Risk Assessment, the Steering Committee qualitatively identified and assessed natural hazard risks in the planning area. To do so, Steering Committee members independently ranked each hazard based on the perceived severity, magnitude, frequency, onset, and duration for the potential worst-case and the most likely scenarios; Appendix A includes definitions of each criterion. The Steering Committee identified 12 natural hazards of concern within the planning area, which were consolidated into seven (7) to improve the accessibility and utility of the plan. The result is that the hazard profile for flooding includes sea level rise and coastal erosion, and the severe weather profile includes drought, extreme heat, and storm surge, as shown in Table 0-3.

No.	Initial HMP Hazard Profile	Consolidated Hazard Profile
1	Earthquake	
2	Epidemic/Pandemic	
3	Flooding	Sea Level Rise and Coastal Erosion
4	Mass Earth Movements	
5	Severe Weather Events	Drought, Extreme Heat, storm Surge
6	Tsunami	
7	Wildfire	

Table 0-3 – OCTA Hazard List

Following the hazards' qualitative identification and scoring, a quantitative analysis used geospatial hazards information where available and generated a series of hazard-specific maps indicating the extent of the hazard risk. Tabular outputs showed the exposure and vulnerability of critical infrastructures and facilities, and customers. The methodology and results of this analysis are discussed further in Part 2 of the plan, Risk Assessment.

Engaging OCTA's Customers and Greater Community

The Steering Committee developed and implemented a community engagement strategy to solicit input from OCTA customers and the greater community throughout the planning process. The strategy included an online survey, an open house, and a 30-day review and comment period of the plan; the strategy and results are discussed at length in Part 1 of the HMP, while the complete materials are available in Appendix D. The following objectives guided the development and implementation of the strategy:

- Identify and engage OCTA customers and community members through a social media campaign
- Distribute a survey to OCTA customers and community members to identify and prioritize hazards, provide mitigation strategies, sign-up to stay engaged in the planning process
- Encourage participation in an HMP draft plan review open house, including targeted invites to those persons who signed up to stay engaged in the planning process
- Solicit written feedback on the draft HMP during the open house and by making it available online

Over 300 OCTA customers and community members participated in the survey, approximately one-third of which provided their emails to stay engaged throughout the planning process.

Developing the Mitigation Strategy

During Workshop 3 – Mitigation Strategy, the Steering Committee developed goals and strategies for the OCTA 2022 HMP by reviewing the OCTA customer and community member survey responses on risks and strategies, comparing them to their own assessment in Workshop 2, and reviewing OCTA's capabilities to mitigate hazards; capabilities include planning and regulatory, administrative and technical, and financial, which are discussed in Section 3.5 of this plan. The stakeholder and community-member driven, risk-informed, and capability-based goals and strategies for the OCTA 2022 HMP are:

- 1. Support OCTA policies, plans, people, and programs to maintain an integrated transportation system that supports the diverse transportation needs of Orange County.
- 2. Minimize vulnerabilities to protect people, property, the natural environment and keep Orange County moving.
- 3. Ensure resilience-oriented decisions incorporate regional collaboration and enhanced partners.
- 4. Promote community engagement through transparent public outreach that is equitable and accessible to everyone in the community.

The Steering Committee established 24 strategies to achieve the mitigation goals outlined in this plan, reducing, or eliminating losses resulting from natural hazards. The mitigation strategies are as follows:

Table 0-4 – OCTA Mitigation Strategies

#	Description
1	Increase public education and outreach by creating a new dedicated hazard webpage to share climate information changes and OCTA mitigation/preparedness measures.
2	Contribute to internal and regional after-action reports for the COVID-19 pandemic to identify critical strategies that need to be completed to reduce risks to the community from future pandemics. These recommendations should be included in future updates of the HMP.
3	Partner with other agencies to implement additional measures to protect coastal rail infrastructure as appropriate in southern Orange County. (Aligns with OC Rail Defense Against Climate Change Plan)
4	Partner with other agencies to study potential erosion control and stormwater measures.
5	Regularly obtain the most recent recommended future heavy precipitation and flow estimates and compare these to the current 100-year high confidence heavy precipitation and flow estimates used for infrastructure design. Determine which estimates should be used to minimize risks to infrastructure over the lifecycle. (Aligns with <i>OC Rail Defense Against Climate Change Plan</i>)
6	Regularly review and update the data used to calculate the rail zero-stress temperature to account for current and projected climate change and stress newly installed and existing rail based on this information. (Aligns with OC Rail Defense Against Climate Change Plan)
7	Evaluate and develop recommendations to retrofit OCTA critical facilities to address seismic risks.
8	Assess and implement engineering options at OCTA bus bases for hardening fuel storage and fueling facilities against seismic and other hazards.
9	Develop site-specific response plans and structures for worksites using SEMS/NIMS principles.
10	Continue OCTA vulnerability assessments for all hazards.
11	Share vulnerability assessment data with partner agencies. Encourage train station amenities to help riders during extreme heat and other severe weather events, including additional shaded or covered areas and seating, restrooms, and cooling mechanisms. Provide accurate information on train schedules to minimize waiting times. (Aligns with OC Rail Defense Against Climate Change Plan)
12	Expand internal communications and preparedness education about potential hazards, including what to do during and after a hazard event.
13	Perform fuel modifications on OCTA conservation properties to provide proper clearance near habitable structures per local fire authority standards. Assess opportunities to replace invasive species and plant fire-adapted native plants to prevent invasive species from becoming re-established, minimizing the risk of wildfires.
14	Evaluate stormwater runoff systems at critical OCTA facilities and infrastructure. As appropriate, upgrade stormwater runoff management at OCTA critical facilities and infrastructure.
15	Continue to use the most current geographic information systems (GIS) data layers in the hazard reduction decision-making processes.
16	Regularly assess the planning area's evacuation routes and pickup points. Coordinate with the County Emergency Management Division and cities to provide the most efficient and effective evacuation transportation support.
17	Support cities and the county in the planning area with evacuation education and public outreach related to OCTA.
18	Evaluate transit options for providing transit services during a disaster event. (Aligned with <i>OC Transit Vision</i> .)
19	Promote the use of new technology in hazard mitigation and emergency preparedness.
20	Continue to develop new and evaluate existing climate change goals and policies as new scientific data and models become available.

#	Description
21	Incorporate data from the 2022 OCTA HMP, mitigation strategies, and risk reduction principles into future updates of agency plans related to hazard mitigation.
22	Develop and improve communication redundancies to ensure effective internal and external communication in a hazard event.
23	Prepare and implement fire management plans, invasive species control, public education and awareness, and enhanced security measures to mitigate the potential for wildfire on conservation properties. Consider closure of conservation properties during times of high fire risk. (Aligned with resource management plans.)
24	Monitor and address adverse effects from properties adjacent to conservation properties. (Aligned with resource management plans.)

Writing, Implementing, + Maintaining the HMP

The Steering Committee developed the OCTA 2022 HMP over approximately nine months with extensive stakeholder and community member involvement. The planning process, including all workshop and community member engagement materials, is documented in Appendix D. The plan meets or exceeds the requirements established under 44 CFR 201.6 – Local Mitigation Plans (Code of Federal Regulations, 2013), as indicated in the FEMA Region IX Local Mitigation Plan Review Tool in Appendix E.

Once the HMP has been approved by OCTA, it is submitted to the California Office of Emergency Services (CalOES) and FEMA Region IX for review and pre-adoption approval. The review process is documented via the FEMA Region IX Local Mitigation Plan Review Tool and an official Approval Pending Adoption (APA) letter from FEMA. Upon receiving the APA letter, OCTA has 12 months to formally adopt the HMP via resolution and inform FEMA that it has been adopted. Once adopted, OCTA is eligible to apply for and receive federal hazard mitigation grant funding.

Over the next five-year period, OCTA will implement the strategies listed in the HMP to realize its goals. HMP implementation will be led by the OCTA Office of Security and Emergency Preparedness and supported by the Steering Committee. The Steering Committee will meet annually to review action implementation, changes in natural hazard risks, update mitigation capabilities, reassess opportunities to continue engagement of OCTA customers and community members, and integration with other relevant plans and programs; the Progress Reporting template in Appendix B will be used to document this process. In five years, OCTA will undertake a comprehensive plan update informed by these annual reports.

OCTA 2022 Hazard Mitigation Plan

Part 1: Planning Process Overview



Part 1

Introduction to Hazard Mitigation Planning 1

1.1 What is Natural Hazard Mitigation Planning?

Hazard mitigation uses long- and short-term strategies to reduce or alleviate the loss of life, personal injury, and property damage resulting from a disaster. It involves planning efforts, policy changes, programs, studies, improvement projects, and other strategies to reduce hazard impacts. Mitigation plans are vital to breaking the cycle of disaster damage, reconstruction, and repeated damage.

The Department of Homeland Security's (DHS) Figure 1-1 National Preparedness System (Department Comprehensive Preparedness Guide 201 states that natural hazards are acts of nature, such as earthquakes, tornadoes, pandemics, or epidemics. Additionally, Title 44 of the Code of Federal Regulations (CFR) Part 201 – Mitigation Planning, Section 201.2, defines hazard mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards" (Code of Federal Regulations, 2013, p. 364). There are textboxes throughout this plan highlighting the HMP's compliance with relevant CFRs.

To develop and implement practical hazard mitigation strategies, communities apply a planning process that mirrors the DHS's National Preparedness System (Figure 1-1). This system defines the planning steps to prepare for all hazards.

These components establish a consistent approach to facilitate decision making, resource allocation, and measure progress towards the National Preparedness Goal. The system assesses the Nation's core capabilities across five mission areas. Step four of the system highlights the necessity and application of mitigation measures. Hazard mitigation planning results in a plan with clear strategies to reduce natural hazard risks to people, property, assets, and the planning area's environment.

1.1.1 The 2000 Disaster Mitigation Act

Before 2000, federal disaster funding focused on relief and recovery after a disaster occurred, with a limited budget for hazard mitigation planning in advance. On October 30, 2000, Congress passed the 2000 Disaster Mitigation Act (DMA), amending the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 and shifting the federal emphasis toward planning for disasters before they occur (Title 42 of the United States Code Section 5121 et seq.) (Federal Emergency Management Agency, 2019). The 2000 Act replaced the previous mitigation planning section (409) with a new mitigation planning section (322).

of Homeland Security, 2011)



44 CFR Section 201.6

Local Mitigation Plans outline an entity's commitment to reducing risks associated with natural hazards.
The DMA requires state, local, and tribal government entities to develop and adopt the FEMA-approved hazard mitigation plans as a condition for federal disaster grant assistance (FEMA, 2007). Section 322 emphasized the need for state, tribal, and local entities to coordinate and collaborate on mitigation planning and implementation efforts (FEMA, 2007). Additionally, Section 322 established the legal basis for the (FEMA's) mitigation plan requirements for the Hazard Mitigation Assistance grant programs.

The DMA encourages cooperation among state, local, and tribal authorities in pre-disaster planning and emphasizes community-based planning before disasters occur. The act also promotes sustainability, including the sound management of natural resources, local economic and social resiliency, and addressing hazards and mitigation in the most extensive possible social and economic context. The enhanced planning network described in the DMA helps local organizations and governments articulate precise needs for mitigation, resulting in a faster allocation of funding and more cost-effective risk-reduction projects.

1.1.2 OCTA's Response to the 2000 Disaster Mitigation Act

OCTA developed its first HMP in 2022, satisfying the requirements of the 2000 DMA and enabling access to federal hazard mitigation grant funding. This HMP assesses the risks posed by natural hazards and identifies current capabilities for reducing those risks within OCTA's service area (i.e., planning area).

1.2 Purposes for Hazard Mitigation Planning

OCTA developed the 2022 HMP to identify and prioritize mitigation strategies. These strategies reduce or alleviate risks from natural hazards, reducing the loss of life, personal injury, and property damage for OCTA and its customers. The plan establishes a roadmap for OCTA to mitigate hazards within the service area and help OCTA coordinate and collaborate with its planning partners. The HMP meets the following objectives:

- Enables access to federal grant funding to reduce disaster risk through mitigation strategies
- Meet or exceed the DMA 2000 requirements
- Complete a risk assessment focusing on hazards of concern within the planning area
- Ensure compliance with state and federal hazard mitigation planning requirements
- Review existing OCTA policies, plans, and programs to identify opportunities for integration of hazard mitigation principles and cooperation with planning partners
- Identify high-priority projects to mitigate natural hazards that can be funded and implemented

1.3 Hazard Mitigation and Climate Adaptation Planning

1.3.1 Climate Change Adaptation and the OCTA 2022 Hazard Mitigation Plan

Climate adaptation planning is similar to natural hazard mitigation planning in that both are adjustments to mitigate the impacts of hazards. However, climate adaptation planning only focuses on climate-related issues (e.g. extreme temperatures, flooding), and natural hazard mitigation planning accounts for climate issues and others. While climate change itself is not a hazard, it may change the characteristics of a hazard within the planning area (e.g., extent). Figure 1-2 shows the similarities and dissimilarities between the two (ICLEI Local Governments for Sustainability USA, 2015).

Figure 1-2 – Hazard Mitigation and Climate Adaption Planning Relationship (ICLEI Local Governments for Sustainability USA, 2015)



Climate change adaptation strategies enable communities to reduce vulnerability to all types of natural hazards by predicting these changes and increasing local capacity to adapt (California Emergency Management Agency and Natural Resources Agency, 2012). The strategies developed may range from short- to long-term and from high-level, broad strategies to detailed, "shovel-ready" projects.

Table 1-1 below describes the California Adaptation Planning Guide, Planning for Adaptive Communities recommendations, and where OCTA's HMP incorporates them.

Climate Adaptive Planning Recommendations	Location in the OCTA HMP
Assessing exposure to climate change impacts	Sections 5 to 11 – individual hazard profiles
Assessing community sensitivity to the exposure	Sections 5 to 11 – individual hazard profiles
Assessing potential impacts	Sections 5 to 11 – individual hazard profiles
Evaluating existing community capacity to adapt to anticipated impacts	Section 3.5 – hazard mitigation capabilities and capacity assessment
Evaluating risk and onset, meaning the certainty of the projections and speed at which they may occur	Sections 5 to 11 – individual hazard profiles
Setting priorities for adaptation needs	Section 12 – mitigation strategy
Identifying strategies	Section 12.1.1 – mitigation strategies
Evaluating and setting priorities for strategies	Section 12.1 – mitigation goals
Establishing phasing and implementation	Section 12.4 – plan implementation and maintenance strategy

Table 1-1 – Climate Adaptation Strategies in the Hazard Mitigation Plan (California Emergency Management Agency and Natural Resources Agency, 2012)

1.3.2 Responding to California SB 379

California SB 379, which amended Section 65302 of the Government Code, requires the safety elements of city and county general plans to be reviewed and updated to include climate adaptation and resiliency strategies (California Legislative Information, 2015). The updated safety elements must consist of a climate change exposure assessment, adaptation and resilience applications, and manageable implementation measures (Alliance of Regional Collaboratives for Climate Adaptation, 2016).

As an agency, OCTA is not required to complete a general plan under California SB 379 (Alliance of Regional Collaboratives for Climate Adaptation, 2016). However, OCTA chose to address climate change throughout the HMP in line with the bill to inform future updates of the County of Orange General Plan and city general plans. The correlation between the bill's elements and OCTA's 2022 HMP is in Table 1-2.

Table 1-2 – OCTA Alignment with California's Climate Change SB 379 (Alliance of Regional Collaboratives for Climate Adaptation, 2016)

New Safety Elements	Location in the OCTA HMP
Assessing exposure to climate change impacts	Part 2 – Risk Assessment
A set of adaptation and resilience goals, policies, and objectives based on the information specified in the vulnerability assessment	Part 3 – Mitigation Strategy
A set of feasible implementation measures designed to carry out the goals, policies, and objectives identified in the adaptation objectives	Part 3 – Mitigation Strategy

1.4 Who Will Benefit from this Plan?

All stakeholders and community members that directly or indirectly rely on OCTA's services ultimately benefit from this HMP. The HMP strives to reduce the risk for customers of OCTA, particularly within the service area. It provides a viable planning framework for all foreseeable natural hazards that may have a negative effect. Participation in developing the plan by stakeholders and community members ensures that outcomes will be mutually beneficial for OCTA and the whole community. This plan provides solutions that other entities can use and benefit from and can

cooperatively implement. The plan's goals and recommendations lay the groundwork for developing and implementing local mitigation activities and partnerships.

1.5 Contents of the HMP

This HMP has three primary parts:

- Part 1 Planning Process and Community Profile
- Part 2 Risk Assessment
- Part 3 Mitigation Strategy

Each part includes elements required under federal guidelines. Additionally, DMA compliance requirements are cited at the beginning of plan sections to illustrate compliance and highlight each section's importance and utility to the reader. The HMP appendices provide details and supporting data:

- Appendix A Acronyms and Definitions
- Appendix B OCTA HMP Annual Progress Report
- **Appendix C** Mitigation Action Evaluation Forms
- Appendix D Planning Process and Public Outreach
- Appendix E FEMA Review Tool
- Appendix F HMP Adoption Resolution
- Appendix G Hazards
- Appendix H References

Whole Community Approach

Engaging private and nonprofit sectors in hazard preparedness and mitigation to build a more hazard resilient nation.

1.5.1 Plan Approach

The OCTA 2022 HMP development process followed these steps:

- Secure grant funding
- Form a planning team
- Define the planning area
- Establish a steering committee
- Coordinate with other agencies
- Review existing programs
- Engage the public

1.5.2 Funding

OCTA received a FEMA Pre-Disaster Hazard Mitigation Grant to support plan development. Grant funding covered 75 percent of the cost to create this plan. OCTA provided additional funding through local funds.

2 HMP Methodology

2.1 Overview

The OCTA 2022 HMP process:

- Formed the planning team
- Included OCTA's response to the 2000 DMA
- Defined the planning area
- Established a steering committee
- Conducted a risk assessment
- Reviewed existing programs
- Engaged the public

2.2 Formation of the Project Team

The OCTA 2022 HMP was developed by OCTA staff with the assistance of professional services consultants, referred to as the Project Team; this included:

- Matt Ankley, Emergency Management Specialist, OCTA
- Eric Grobmyer, Emergency Management Specialist, OCTA
- Katrina Faulkner, Security and Emergency Preparedness Manager, OCTA
- Trevor Clifford, Project Manager, WSP
- Colleen Kragen, Mitigation Planner, WSP
- Brennah McVey, GIS Analyst, WSP
- Dane Kovaleski, Mitigation Planner, WSP

2.3 Formation of the Steering Committee

Hazard mitigation planning enhances collaboration and support among parties whose interests can be affected by hazard losses. A broad range of stakeholders can identify and create partnerships to achieve a shared vision for the community by working together. To oversee the HMP development, OCTA formed an 18-person Steering Committee, listed in Table 2-1. The committee members included local government representatives in the planning area and key OCTA staff representing all staff, sites, departments.

Workshop materials (i.e., agenda, slide deck, sign-in sheet, worksheet(s), and summaries) are available in Appendix D for review, documenting the plan development and decision-making process.

Name	Entity	Title	Department/Office
Matt Ankley	ОСТА	Emergency Management Specialist	Chief Executive Office
Katrina Faulkner	ΟርΤΑ	Manager, Security, and Emergency Preparedness	Chief Executive Office
Megan Abba	OCTA	Communications Specialist	Chief Executive Office
Jason Lee	ΟCTA	Project Manager, Metrolink Expansion	Capital Programs
George Olivo	ΟርΤΑ	Program Manager of Facilities Engineering	Capital Programs
Charlie Larwood	ΟCTA	Manager of Planning and Analysis	Planning
Marissa Espino	OCTA	Community Relations Specialist	External Affairs
Chris Damyen	ΟCTA	Manager of Facilities Maintenance	Operations
Cleve Cleveland	ΟCTA	Manager, OC Streetcar	Operations
Dinah Minteer	ΟCTA	Manager of Regional Rail	Operations
Ethan Brown	Orange County Sheriff's Department	Emergency Management Coordinator	Emergency Management Division
Randy Harper	Orange County Sheriff's Department	Emergency Management Coordinator	Emergency Management Division
Rudy Emami	City of Anaheim	Director	Public Works
Mike Davis	City of Irvine	Assistant Director	Transportation
Bill Murray	City of Garden Grove	Director	Public Works
Brett Canedy	City of Mission Viejo	Transportation Analyst	Transportation
Taig Higgins	City Santa Ana	Principal Engineer	Public Works
Anna Lowe	San Diego Association of Governments	Senior Regional Planner	Regional Planning

Table 2-1 – Steering Committee Members

2.4 Defining the Planning Area

The OCTA 2022 HMP planning area is synonymous with the OCTA service area; it covers Orange County and small portions of Los Angeles and San Diego County. The Steering Committee agreed that the OCTA HMP should incorporate all customers and owned and operated assets within the service area; Section 3.1.1 further discusses the OCTA service area. Figure 2-1 on the next page illustrates the planning boundary and key area elements.





44 CFR Section 201.6(b)

The planning process

must include open public

the plan draft and before

the plan is approved.

for

with

the

2.5 Community Engagement

The Project Team and OCTA's Department of Community Relations developed and implemented a community engagement strategy to solicit input throughout the planning process. The strategy included an online survey, an open house, and a public review of the HMP. Results from these engagements are discussed in sub-sections 2.5.1 to 2.5.3 below, while all materials are available in Appendix D. The following objectives guided the development and implementation of the strategy:

- Identify and engage OCTA customers and community members through a social media campaign
- Distribute a survey to OCTA customers and community members to identify and prioritize hazards, provide mitigation strategies, sign-up to stay engaged in the planning process
- Encourage participation in an HMP draft plan review open house, including targeted invites to those persons who signed up to stay engaged in the planning process
- Develop an OCTA Office of Security and Emergency Preparedness webpage to host the plan for review octa.net/HMP
- Solicit written feedback on the draft HMP during the open house and by making it available online



Participate in OCTA's Natural

Disaster Preparation Survey

Figure 2-3 – Orange County Transportation Authority's Online Hazard Mitigation Public Survey Available in English, Spanish, and Vietnamese

involvement opportunity public to comment on

Figure 2-2 – Orange County Transportation Authority's Public Survey Shared on Twitter



OCTA successfully marketed the mitigation hazard survey to customers and community members through the OCTA Twitter feed (Figure 2-2) and OCTA blog (Figure 2-3). The survey was available in English, Spanish, and Vietnamese to ensure a diverse, equitable, and inclusive community engagement. Doing so ensures the OCTA 2022 HMP is responsive to the whole community's values, concerns, and ideas.

2.5.1 Orange County Transportation Authority Customer Hazard Mitigation Survey Results

In December 2020, OCTA shared the 13-question online OCTA 2022 Hazard Mitigation Survey in English, Spanish, and Vietnamese. OCTA received responses from 348 customers, including five in Spanish and four in Vietnamese. Over 120 survey respondents (35 percent) indicated that they would like to stay engaged in the planning process and provided their email to do so. The transportation method most used by survey participants is OC buses by far, with Metrolink/Amtrak in second, and the OC Vanpool is the least used by respondents. Figure 2-4 shows OCTA's services most used by survey participants.





Customers identified their top three hazards that could impact their commute the most. The top three were earthquakes, which came in at the highest, then epidemic/pandemics, and wildfires not far behind. Conversely, the lowest three hazards were mass earth movements, flood, sea-level rise (SLR), and tsunamis, which were considered least likely to impact participants' commute.



Figure 2-5 – OCTA Survey Results for the Top Three Hazards Potentially Impacting Participants' Commutes

Figure 2-6 reveals the customer survey responses to the hazards they have experienced and how often. Earthquakes were one of the most experienced hazards with the highest frequency, approximately once per year to once every few years. Due to the COVID-19 pandemic occurring during the HMP development, most customers reported experiencing an epidemic/pandemic one to three times in their lifetime. In contrast, few participants had experienced mass earth movements or tsunamis.



Figure 2-6 – OCTA Survey Results for What Hazards Participants Experienced and at What Frequency

2.5.2 Online Open House

OCTA hosted a one-hour open house with customers and community members on June 16, 2021, to discuss the plan development process and solicit input on the plan. The discussion revolved around natural hazards, exposure, and vulnerability (i.e., risk). The survey also asked participants what strategies they would like to see OCTA implement to mitigate risks in the planning area. Similar to OCTA's marketing campaign for the survey, Figure 2-7 – OCTA's Online Open House Registration Page

	Webinar Registration
	f 🗾 in 🔤
Торіс	Orange County Transportation Authority-Open House
Description	Orange County Transportation Authority-Open House
Time	Jun 30, 2021 05:00 PM in Pacific Time (US and Canada)

OCTA leveraged its Twitter and blog platforms to encourage broad participation.

2.5.3 Hazard Mitigation Plan 30-day Review Period

OCTA invited customers and community members to participate in all phases of the HMP development process and comment on HMP drafts. The OCTA website will continue to provide up-to-date information on the HMP here: <u>http://www.octa.net/Projects-and-Programs/Plans-and-Studies/Hazard-Mitigation-Plan/?frm=13645/</u>





Overview

The Orange County Transportation Authority (OCTA) is developing a hazard mitigation plan designed to support current OCTA emergency and crisis management plans and to strengthen the organization's preparedness to natural hazards. Examples of natural hazards include flooding, earthquakes, and wildfires. The plan will also enable OCTA to access federal funding, opening opportunities to put additional or enhanced resilience measures in place.

Objectives

- Ensure all State and Federal outreach requirements for a Hazard Mitigation Plan are met.
- Work collaboratively with stakeholders to address natural hazard preparation.
- Share the public comment process with all interested parties and make it easy and accessible for all communities to be able to comment.

2.6 Coordination with Other Agencies

OCTA invited local jurisdictions, special districts, and communitybased organizations to participate in the OCTA 2022 HMP Steering Committee and support the HMP planning process through workshops, surveys, and the draft HMP review. Invitees included but were not limited to:

- The County of Orange
- The San Diego Association of Governments
- The City of Anaheim
- The City of Irvine
- The City of Garden Grove
- The City of Mission Viejo
- The City of Santa Ana

OCTA asked all the above agencies to review the draft HMP via email by the Project Team. A complete draft plan was sent to Cal OES and FEMA Region IX for pre-adoption review and approval to ensure DMA 2000 compliance.

2.6.1 Review of Policies, Plans, and Programs

The following OCTA policies, plans, and programs informed the HMP development:

- OCTA 2014-2019 Strategic Plan
- OCTA 2018 Long-Range Transportation Plan
- OCTA 2018 OC Transit Vision Plan
- OCTA 2020 Emergency Operations Plan (EOP)
- OCTA 2019 Crisis Communications Annex
- OCTA 2018 Continuity of Operations Plan (COOP)
- OCTA 2016 Threat and Hazard Identification Risk Assessment (THIRA)
- OCTA Capital Programming Policies Update 2019

Other agency policies, plans, and programs that informed the HMP's development include:

- 2015 County of Orange and Orange County Fire Authority Local Hazard Mitigation Plan
- 2019 County of Los Angeles All-Hazards Mitigation Plan Public Draft
- 2018 County of San Diego Multi-jurisdictional Hazard Mitigation Plan
- 2018 State of California Hazard Mitigation Plan
- 2020 City of Garden Grove Local Hazard Mitigation Plan (draft)

The review of these policies, plans, and programs informed the development of the OCTA 2022 HMP. Existing OCTA plans were reviewed to develop the goals in this HMP, supporting OCTA's overarching missions and objectives. The natural hazards and mitigation strategies in OCTA's THIRA, EOP, and COOP were evaluated during the HMP initial planning stage to ensure continuity between these plans. Specifically, the 2016 THIRA identified a list of natural hazards and capabilities to mitigate them, creating a baseline for the 2022 HMP hazard identification and risk assessment. Figure 2-1 shows OCTA's planning area and the counties covered; the county HMPs provided foundational information for this HMP.

44 CFR Section 201.6(b)(2)

Jurisdictions also need to provide an opportunity for neighboring communities, local and regional hazard mitigation involved government agencies, agencies that regulate development, businesses, academia, private, and nonprofit groups to be involved in the planning process.

44 CFR Section 201.6(b)(3)

States that other plans, studies, reports, and technical information related to the mitigation plan should be reviewed and incorporated where applicable.

2.7 Plan Development Chronology and Milestones

Table 2-2 – Steering Committee Meetings

Date	Event	Description
June 19, 2020	Release a request for proposals to develop their HMP	Secure contractor support to facilitate the development of OCTA's HMP
August 12, 2020	Steering Committee Workshop #1 Project Kickoff	 Overview of hazard mitigation planning process, purpose, and requirements Project overview for the HMP Community engagement Activity 1, hazard identification and ranking Activity 2, capability assessment Next steps and action items
November 3, 2020	Steering Committee Workshop #2 Risk Assessment	 Overview of progress from Workshop 1 Activity 1, risk assessment worksheet Went through the hazard maps Next steps and action items
December 2020	Public Survey	OCTA issued a survey to gather public feedback on area hazards. OCTA shared the survey link on its blog and social media accounts.
January 20, 2021	Steering Committee Workshop #3 Mitigation Strategy	 Overview of the planning process since Workshop 2 Reviewed the public survey results Identified OCTA's HMP goals Activity 1, developing mitigation strategies worksheet Activity 2, prioritizing strategies worksheet
May 25, 2021	Steering Committee Workshop #4 Draft Plan Review	 Reviewed hazard mitigation plan and CFR compliance Validated hazard mitigation capabilities and capacity Finalized goals, strategies, and implementation Established plan maintenance protocol and committee Discussed public open house and 30-day review period
June 21, 2021	30-day Public Comment Period	Provided OCTA customers and the public an opportunity to review and comment on the plan prior to approval.
June 30, 2021	Public Open House	Hosted a two-hour virtual open house with OCTA customers and the public to discuss the hazard mitigation planning process, and review and solicit feedback on the plan.
August 5, 2021	Draft Plan Submission to Cal- OES	 CalOES must review and approve the plan prior to submission / review by FEMA
March 30, 2022	Plan Submission to FEMA	- FEMA review of plan
April 27, 2022	Plan Pre-Adoption Approval from FEMA	-Approval of plan pending OCTA Board of Directors (Board) adoption
October 10, 2022	Final Plan Approval	- Pending- OCTA Board approval of plan

3 Orange County Transportation Authority Profile

3.1 History of the Orange County Transportation Authority

OCTA was established in 1991 when seven separate transportation planning agencies consolidated to become OCTA (OCTA, 2018). The service area started in the City of Santa Ana, eventually expanding to all of Orange County and a small section of San Diego County. Since 1991, OCTA was an integral part of the growing community and economy of Orange County, providing vital commuter services to residents and visitors. Over the years, OCTA successfully implemented numerous transportation projects and services directly or in conjunction with other agencies that included over a billion bus passenger trips, an estimated 62 million Metrolink riders, over 200 miles of freeway lanes, and approximately 2,000 synchronized traffic signals installed (OCTA, 2018).

3.1.1 Orange County Transportation Authority Service Area

Figure 2-1 is the planning area map. OCTA administers vital transportation support to the planning area and communities by reducing congestion, expanding travel efficiency, and improving travel safety (Orange County Transportation Authority, n.d.). Service includes an extensive bus network of 60 routes that travel in small local areas and throughout the larger Orange County community (Orange County Transportation Authority, n.d.). The OCTA Station link connects Metrolink stations with prominent employment centers (Orange County Transportation Authority, n.d.). OCTA is currently expanding services with the addition of a new streetcar.

3.1.2 Geographic Setting and Visitors

At 799.8 square miles, Orange County sits along the California coast, with Los Angeles County to the north and San Bernardino County and Riverside County to the northeast. The Cleveland National Forest borders the County's inland side, which runs into San Bernardino County to the east. Within Orange County, there are 34 cities, John Wayne, and Fullerton airports, three harbors, 28 colleges and universities, 33 public libraries, and 25 hospitals (California State University Fullerton, 2022). The County boasts a few major amusement parks, including Disneyland, Knott's Berry Farm, Soak City Water Park, Knott's Independence Hall (Go-California, n.d.). Additionally, 25 regional and wilderness parks are featured on the County's visitor website that encompasses 39,000 County acres (Orange County, n.d.). On the Pacific coastline of Orange County is a beautiful 42 mile stretch of recreational beachfront and the coastal cities of San Clemente, Dana Point, Laguna Beach, Newport Beach, Huntington Beach, and Seal Beach (Visit Anaheim, n.d.). ABC Eyewitness News reported on a study by CIC Research that showed Orange County had more than 50 million visitors in 2018 (De Nova, 2019). These visitors have a direct impact on OCTA's planning area, customers, and infrastructure.

3.1.3 Planning Area Demographics

The 2018 US Census Bureau projected population numbers, past annual bus ridership counts, and GIS layers inform OCTA planning area service trends. Resident population and demographics for the OCTA planning area are from 2018 US Census Data and California State University's 2022 Orange County Progress Report, which estimates nearly three million residents. Bus ridership is the total number of times a bus is boarded in a day. In 2019, OCTA's annual ridership included approximately 35.5 million boardings.

Protecting vulnerable populations that are at a higher risk is a primary goal of hazard mitigation planning. FEMA defines these populations as low-income households, senior citizens, disenfranchised minorities,

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those that speak English as a second language or not at all, and children (FEMA, 2009). Demographics of these vulnerable groups in the planning area are:

- Hispanic or Latino 34.1 percent
- Black, American Eskimos, or Hawaiian/Pacific Islanders less than one percent of the population
- Asian (not mixed) 21.9 percent
- 65 years or older 11.5 percent
 - This population group is more vulnerable because they may need more support and/or resources after an earthquake, such as medical care, mobility, or transportation support.
- Under 19 years old 27.4 percent
 - The statistics for youth go up to age 19, though only individuals under 18 are vulnerable populations as they are legally dependent on adults and usually require adult supervision, especially during a disaster. Additional challenges arise when children are away from their guardians, such as during daycare or school.
- Five years and older speak a language other than English at home 44.5 percent
 - Residents who speak a language other than English may have difficulty understanding the level of risk related to warnings or alerts.
- Population that speaks little to no English 9.8 percent
- Qualify as living below the poverty level 13.0 percent

Households below the poverty level are more vulnerable because they have less financial security, which may prevent them from preparing for a disaster. Low-income households are also more likely to rent, potentially leaving them without a home if their rental is significantly damaged (Lazo, Bostrom, Morss, Demuth, & Lazrus, 2015).

It is critical to identify potentially vulnerable populations during HMP development to establish mitigation strategies that account for special considerations to protect these populations. Each of the hazard profiles assesses risk for vulnerable populations in Sections 5 to 11.

3.1.4 Daily Commuter Population

Orange County commuting trends have steadily increased with a rise in employment numbers, 1.39 million in 2010 to 1.52 million in 2015 (OCTA, 2018). The largest employment centers are in central and north Orange County, with several other employment areas spread throughout the County (See Figure 3-0). More residents commute into Orange County than residents in Orange County commute to other counties.

The OCTA Long-Range Transportation Plan incorporates the California Department of Finance 2016 commuter map for Orange County, illustrated in Figure 3-1 on the next page (Orange County Transportation Authority,2018). During these peak transit times, a hazard can significantly impact the transportation infrastructure as more customers rely on OCTA services. OCTA risk assessment and hazard mitigation strategies consider the issues associated with high-traffic commuter hours. The OCTA Long-Range Transportation Plan incorporates the California Department of Finance 2016 commuter map for Orange County, illustrated in Figure 18 on the next page (Orange County Transportation Authority, 2018). During these peak transit times, a hazard can significantly impact the transportation infrastructure as more customers rely on OCTA services. OCTA risk assessment and hazard mitigation strategies consider the issues associated with next page (Orange County Transportation Authority, 2018). During these peak transit times, a hazard can significantly impact the transportation infrastructure as more customers rely on OCTA services. OCTA risk assessment and hazard mitigation strategies consider the issues with high-traffic commuter hours.



Figure 3-0 – 2019 Employment Density of Orange County. (Orange County Transportation Authority, 2019)



Figure 3-1 – 2016 Commuter Flow in and out of Orange County (OCTA, 2018)

3.2 Physical Setting

3.2.1 Geology and Topography

The OCTA service area lies between the Pacific Ocean to the west, the Santa Ana Mountain range in the east, and the Puente Hills to the southeast. Historically, shallow seawater covered most of the County (Irvine Valley College). This water coverage influenced the County's coastal geology and topography with marine water deposits, including fossils, shells, sand, and small rocks (Irvine Valley College). As a result, the coastline varies from wide sandy beaches to rocky shores and tall sand and clay cliffs.

The geology of the highest peaks of the Santa Ana Mountain range is metasedimentary rocks (Irvine Valley College). Over time, mass earth movements, erosion, and river flooding, transported boulders, rocks, gravel, sand, and silt to the valleys and coastal plain below (County of Orange and Orange County Fire Authority, 2015). As a result, the range's current geology is primarily rock and sediment washed down and fallen from the mountains (County of Orange and Orange County Fire Authority, 2015).

3.2.2 Climate

Figure 3-2 shows National Climatic Data Center (NCDC) Orange County average annual temperatures. NWS San Diego weather station annual and seasonal statistics are in Table 3-1.

Figure 3-2 – Orange County Average Annual Temperatures From 1981-2021 (National Centers for Environmental Information, 2021)

Orange County, California Average Temperature

January-December



Table 3-1 – Normal Temperatures in °F and Precipitation in Inches Recorded at the San Diego Miramar NAS Weather Station (National Centers for Environmental Information, 2020)

Season	Max Temperature	Minimum Temperature	Average Temperature	Precipitation
Annual	73.4	55.1	64.2	11.48
Winter	67.1	47.1	57.1	6.95
Spring	69.9	52.9	61.4	2.70
Summer	79.3	63.1	71.2	0.19
Autumn	77.1	57.2	67.2	1.64

3.3 Future Trends in Development

Changes in development mean recent development, potential/planned development, or conditions that may affect the jurisdiction's risks and vulnerabilities (e.g., climate change, projected population growth). Ridership has steadily decreased on a long-term basis since 2012 due to an increase in private vehicle access and new ride-hail services. With the expected growth, continued investment in the transportation system will prevent crowded roadways, increased commute times, and strained infrastructure (Orange County Transportation Authority, 2018). To

44 CFR Section 201.6(c)(2)

Hazard mitigation plan risk assessments must provide a basic description of land use and projected development trends in the community. manage the expected growth and minimize mass earth movement hazards in the planning area, OCTA follows State and local regulations.

The OC General Plan Chapter X: Housing Element estimates future population numbers, characteristics, and housing needs. Orange County most recently updated the plan's housing element in 2013, where expected growth from 2000-2012 was 7.4 percent (Orange County, 2013). Additionally, the US Census Bureau predicts Orange County's population will increase by 5.5 percent between 2010 and 2019 (United States Census Bureau, 2018). Therefore, it is essential to reevaluate future population predictions when these sources are updated next.

3.4 Orange County Transportation Authority Organizational Structure

3.4.1 Leadership

The OCTA Board consists of 18 individuals representing all of Orange County. Elected Orange County Board of Supervisors fill five Board positions. Ten Board positions are filled by City Members appointed by the Orange County City Selection Committee. Two positions are filled by public members appointed by the OCTA Board. The 18th member is the California Department of Transportation (Caltrans) District Director, who serves ex-office (Orange County Transportation Authority, 2020). The Chief Executive Officer (CEO) leads OCTA's staff of 1,500 members and is responsible for projects, programs, and services for the more than three million Orange County residents (Orange County Transportation Authority, n.d.). Along with the Board, the CEO is responsible for managing an annual budget of \$1.4 billion. The Board applies these funds to freeways, streets, rail, countywide buses, commuter rail, paratransit services, and the 91 Express Lane projects (Orange County Transportation Authority, n.d.).

3.4.2 Public Participation and Committees

OCTA understands citizen feedback is essential to planning and actively encourages public participation and input on programs, studies, and projects. OCTA solicited input through public meetings, open houses, workshops, online surveys, newspaper ads, and focus groups (Orange County Transportation Authority, n.d.). OCTA has three public committees that offer project-specific input from the community. State legislation requires these committees to meet regularly. OCTA committees include the Citizens Advisory Committee, Accessible Transit Advisory Committee, and Taxpayer Oversight Committee (Orange County Transportation Authority, n.d.).

3.5 Hazard Mitigation Capabilities and Capacity Assessment

To ensure that the OCTA 2022 HMP is a capabilities-based plan, the Project Team, with input from the Steering Committee, completed a comprehensive hazard mitigation capabilities and capacity assessment during Workshop 1 – Project Kickoff Meeting. First, the Steering Committee identified OCTA's current resources, abilities, and local area agreements that support the hazard mitigation plan. Next, OCTA's capabilities were weighed against each hazard, their level of exposure, and the planning area's vulnerability to determine the level of risk. The assessment evaluated the following resource groups:

- Planning and Regulatory
- Administrative and Technical
- Financial
- Education and Outreach

3.5.1 Planning and Regulatory

Planning and regulatory capabilities include the plans, policies, codes, and ordinances that mitigate impacts from hazards.

Plan Title	Yes/No Year	Does the plan address the hazards?	How does the plan identify projects to include in the mitigation strategies?	How can the plan be used to implement mitigation strategies?
Transit Master Plan	Yes, 2014	The plan does not explicitly identify the hazards in the HMP.	This strategic plan includes a section for other plan integration. This process allows OCTA to assess the HMP mitigation strategies in conjunction with the strategic plan updates.	This HMP will be reviewed when the strategic plan is updated. In addition, OCTA will consider how the HMP mitigations support the strategic plan's goals, encouraging mitigation action implementation.
Next 10 Delivery Plan	Yes, 2017	The plans outline OCTA's goals and objectives to utilize sound business practices and multiple efficient transportation options but do not explicitly identify the hazards in the HMP.	During plan updates, OCTA will review the HMP and identify mitigations strategies that help meet OCTA's business plan and capital plan goals.	The business and capital plans are updated regularly, with the most recent plan revised to address the 2021-2030 time frame. In the next update, OCTA will include identifying beneficial mitigation strategies. This process supports mitigation action implementation.
Annual Budget Plan	Yes, 2020	OCTA's annual budget plan incorporates the financial breakdown for projects, including the mitigation strategies in the HMP.	The HMP mitigation strategies will be evaluated as part of next year's budget planning process.	Next year's budget plan will include the funds allocated for the HMP mitigation strategies.
Local Emergency Operations Plan	Yes, 2020	OCTA's EOP contains emergency procedures to prepare for and minimize risks during an emergency, from the following hazards - cybersecurity, earthquake, explosive incident, power outage, and a pandemic.	In the next EOP update, the HMP will be reviewed to include the same hazards and identify mitigation strategies related to emergency preparedness.	In the next update, OCTA will consider how the HMP mitigation strategies support the EOP goals, encouraging mitigation action implementation.

Plan Title	Yes/No Year	Does the plan address the hazards?	How does the plan identify projects to include in the mitigation strategies?	How can the plan be used to implement mitigation strategies?
Continuity of Operations Plan	Yes, 2018	OCTA's COOP outlines processes and procedures to continue critical operations during an emergency. The plan refers to the 2016 THIRA for hazards addressed in the COOP.	In the next COOP update, the HMP will be reviewed to include the same hazards and identify mitigation strategies related to continuity of operations.	In the next update, OCTA will consider how the HMP mitigation strategies support the COOP goals, encouraging mitigation action implementation.
California Transportation Plan	Yes, 2016	This plan improves environmental and health outcomes with climate change considerations for transportation. It does not identify the hazards in the HMP but works to minimize climate change impacts affecting the hazards.	Climate change impacts each hazard, increasing frequency, and severity. This plan supports the HMP mitigation strategies with responsible development that protects the environment as much as possible.	This HMP will be reviewed when the transportation plan is updated. OCTA will consider how the HMP mitigations support the transportation plan's goals, encouraging mitigation action implementation.
Environmental Cleanup Program	Yes, 2020	This program allocates funds for controlling transportation-generated pollution, allowing County jurisdictions to meet the Clean Water Act. It does not identify the hazards in the HMP but works to minimize climate change impacts affecting the hazards.	Climate change impacts each hazard, increasing frequency, and severity. This plan supports HMP mitigation strategies with clean water projects that protect the environment as much as possible.	This HMP was reviewed alongside the Environmental Cleanup Program. OCTA considered how the HMP mitigations support the cleanup programs' goals, encouraging mitigation action implementation.
Climate Change Resiliency Plan	Yes, Board Approval Pending 2023	This plan is designed around climate change mitigations and protecting the environment.	Climate change impacts each hazard, increasing frequency, and severity. This plan supports the HMP mitigation strategies by laying out a plan to reduce climate change's impact on the organization and the planning area.	This HMP will be used to understand climate change impacts on OCTA operations better, thereby helping to anticipate and plan projects required to mitigate the effects of climate change.

Plan Title	Yes/No Year	Does the plan address the hazards?	How does the plan identify projects to include in the mitigation strategies?	How can the plan be used to implement mitigation strategies?
M2 Natural Community/ Habitat Conservation Plan	Yes, 2017	This plan focuses on managing natural preserves and flora, and fauna found there.	As part of the management plan, a separate Fire Management Plan, Fire Response Plan, and Erosion Control plan are maintained.	The HMP can be used to understand further hazards and plan projects to reduce losses in the wildland/urban interface.

Rate the Overall Planning Capabilities				
Very Low	Low	Moderate	High	Very High
			х	

How can the OCTA expand Planning Capabilities and reduce risks?

This HMP will help inform planners on OCTA risks, thereby enhancing OCTA's ability to safeguard the community and environment.

National Flood Insurance Program (NFIP)			
NFIP Entry Date Current Effective Map Date		Number of Policies	Amount of Coverage (in \$)
N/A	N/A	N/A	\$0

Special districts, like OCTA, are not eligible to participate in the NFIP.

3.5.2 Administrative and Technical

Administrative and technical capabilities include staff and their skills and resources that may be leveraged for mitigation planning and implementation.

Administration	Yes/No	Is coordination effective?
Regional Planning Committees and other Groups	Yes	Yes, OCTA participates in several regional committees that address transportation, air quality, and environmental issues.
Hazard Mitigation Steering Committee	Yes	Yes. The Mitigation Planning Committee was established during the OCTA 2022 HMP planning process and has agreed to meet annually to review hazards and a hazard mitigation capability.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Yes, OCTA has multiple maintenance programs to protect the environment and reduce hazard risks. These programs are in their plans (included in the first table in Section 3.3).

Administration	Yes/No	Is coordination effective?
Mutual aid agreements (e.g., inter-local agreements)	Yes	Yes. OCTA remains engaged in local mitigation efforts through the Orange County Operational Area Agreement related to OCTA operations and adjusts accordingly.

Staff	Yes/No	ls staffing adequate to support regulations?	Is coordination effective between staff and agencies?	Is staff trained on hazards and mitigation?
Operations COO	Yes	Yes	Yes	Yes
Government Relations Executive Director	Yes	Yes	Yes	Yes
Emergency Management Specialist	Yes	Yes	Yes	Yes
Capital Programs Director	Yes	Yes	Yes	Yes
GIS Coordinator	Yes	Yes	Yes	Yes
External Affairs Department	Yes	Yes	Yes	Yes
Planning Department	Yes	Yes	Yes	Yes
Risk Management Department	Yes	Yes	Yes	Yes
Health, Safety, and Environmental Compliance Department	Yes	Yes	Yes	Yes

Technical	Yes/No Year Adopted	Has the capability been leveraged to assess or mitigate risk?
Hazard Data and Information	Yes, 2016	Yes
Grant Writing/Management Services	Yes	Yes
HAZUS Analysis	Yes 2021	Yes

Rate the Overall Administrative and Technical Capabilities					
Very Low	Low	Moderate	High	Very High	
			Х		

How can OCTA expand Administrative and Technical Capabilities and reduce risks?

As hazard datasets continue to be refined, OCTA can use the information to inform and improve the prioritization of projects to mitigate hazard impacts.

3.5.3 Financial

Financial capabilities include funding sources that do not need to be repaid (e.g., government grants, taxes, user fees, and philanthropic sources) and finance (e.g., bonds, private lending).

Funding Resource	Access/ Eligibility (Yes/No)	Has funding been leveraged for hazard mitigation? If so, how?	If not, could funding be used for mitigation, and how?
Capital Improvement Project Funding	Yes	OCTA continues to remove non-native invasive plants from the OCTA-owned mitigation properties. The removal of these weeds increases the fire resiliency of these lands, which is extremely important as they occur within very high risk fire areas.	
Authority to levy taxes for specific purposes (e.g., special assessment districts)	Yes	Measure M2 project added a 30-year half- cent sales tax for transportation improvements. This plan is not directly related to HMP hazards, but environmental care and protection can positively impact natural hazard risks.	
FEMA Hazard Mitigation Grant Program	Yes	OCTA applied for and received funding from FEMA's Hazard Mitigation Grant Program to fund the development of this plan.	
Other Federal Funding Programs	Yes	 FEMA: Transit Security Grant Program; Flood Mitigation Assistance; Building Resilient Infrastructure Communities (BRIC). Federal Railroad Administration: Consolidated Rail Infrastructure and Safety Improvements FTA Formula Programs: 5307 Urbanized Area Formula; 5337 State of Good Repair. Federal Highway Administration: Surface Transportation Block Grant 	FTA 5337: State of Good Repair (to repair facilities at the rail stations & in rail ROW, for example); Transit Security Grant Program: for security patrols/deterrence & Be the One campaign – public awareness of human trafficking
State Funding Programs	Yes	Caltrans Adaptation Planning Grant Program: funding current rail defense against climate change study; Caltrans Systemic Safety Analysis Report: Countywide safety analysis; Caltrans Sustainable Communities Program: Bus Stop Safety and Accessibility Plan (12 busiest transit areas in the county)	
Insurance Products	-		

Rate the Overall Financial Capabilities				
Very Low	Low	Moderate	High	Very High
			Х	

How can OCTA expand Financial Capabilities and reduce risks?

OCTA can work with Orange County **Operational Area Emergency Management** to manage risk-reducing projects within OCTA's service area. Through this effort, the OCTA Grants Department is seeking opportunities to identify co-benefits for mitigation projects with upcoming grant applications for programs that otherwise would not be addressing resilience.

3.5.4 Education and Outreach

Education and outreach capabilities include ongoing programs that local-to-federal government, nonprofit, and other organizations provide to communities. OCTA can leverage these programs to implement hazard mitigation strategies and build community resilience. The tables below indicate which of the following programs currently exist and how they are or could be used to mitigate hazards and build resilience.

Program/ Organization	Year	Identify the program and describe how it relates to resilience and mitigation
The Great Shake Out	since 2012	OCTA participates annually, raising awareness among ridership and employees, improving system resilience during an emergency
Emergency Preparedness Month	Since 2018	OCTA participates annually, raising awareness among ridership and employees, improving system resilience during an emergency
Disaster Service Worker Program	Since 2016	OCTA participates annually, raising awareness among ridership and employees, improving system resilience during an emergency

How can OCTA expand Education and Outreach Capabilities and reduce risks?

OCTA has identified an action to develop a public-facing webpage to maintain hazard mitigation and disaster preparedness resources for riders and employees. Each year, because of extreme heat or cold, Orange County opens warming and cooling centers, and OCTA can help improve access by communicating locations to ridership.

OCTA has been asked to and will be participating in emergency preparedness fares with local jurisdictions within its service area. OCTA is actively participating in hazard mitigation planning processes with local jurisdictions within its service area.

OCTA 2022 Hazard Mitigation Plan

Part 2: Risk Assessment



Part 2

4 Risk Assessment

4.1 Introduction

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage from identified hazards. This process allows emergency management personnel to establish hazard mitigation priorities. The probability of a hazard occurring, exposure, and vulnerability of populations, property, critical infrastructures, and facilities determines the planning area's risk level. The process focuses on these elements:

- Hazard identification and ranking Determine the hazards that may impact a jurisdiction.
- Exposure identification Estimate the total number of people and properties in the jurisdiction likely to experience a hazard event if it occurs.
- Vulnerability identification and loss estimation Assess the potential impact of a hazard on the populations, properties, environment, and critical infrastructures and facilities within a planning area and their capacity to mitigate its effects. Then estimate the potential life and economic losses and possible costs avoided from mitigation strategies taken.

44 CFR Section 201.6(c)(2)

Requires a risk assessment that provides a factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable jurisdictions to identify and prioritize appropriate mitigation strategies to reduce losses from identified hazards.

4.2 Methodology

Qualitative and quantitative methods for describing and analyzing each hazard informed the hazard profiles in Sections 5 through 11. These profiles included the planning area's hazard risk, including: exposure and vulnerability of populations, properties, and critical infrastructures and facilities. Risk exists where a structure, population, and/or infrastructure are exposed and vulnerable to a particular hazard. If there is no exposure or vulnerability, there is no risk from the hazard. The HMP incorporates mitigation strategies to minimize or remove exposures and/or vulnerabilities, reducing or removing the risk.

4.2.1 Qualitative Methods – Identifying and Prioritizing Hazards of Concern

The Steering Committee identified and prioritized the hazards included in the HMP by assessing the probability, frequency, magnitude, severity, and warning time of each within the planning area. The Steering Committee ranked the hazards based on their subjective assumptions of the most likely and worst-case scenarios. When assessing the hazards, the Steering Committee considered the exposure and vulnerability of populations, properties, and critical infrastructures and facilities within the planning area. In 2016, OCTA completed a THIRA, which identified the following natural hazards with the potential to affect OCTA's service area:

1. Earthquake 2. Epidemic 3. Flood 4. Pandemic 5. Wildfire

The OCTA 2022 HMP aligned with the OCTA 2016 THIRA and expanded the HMP hazards to incorporate sea level rise, coastal erosion, tsunami, and severe weather. The Steering Committee initially defined 12

hazard profiles, and throughout the plan development, condensed a few closely related hazards; the resulting hazard profiles in Table 4-1 below are in the OCTA 2022 HMP.

Table 4-1 – Steering Committee Hazard Ranking Results

Hazard Profiles	Worst-Case	Most-Likely	Section/Page
Earthquake	2	2	5, page 38
Epidemic/Pandemic	3	3	6, page 51
Flooding (including Sea Level Rise, and Coastal Erosion)	5	5	9, page 58
Mass Earth Movement	6	6	8, page 73
Severe Weather (including Drought, Extreme heat, and Storm Surge)	4	4	9, page 86
Tsunami	7	7	10, page 102
Wildfires	1	1	11, page 110

Hazard survey results are in Tables 4-2 and 4-3. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. The hazard ranking is from one to seven, where one is at the top and seven is at the bottom. High-priority hazards are those hazards that scored in the top one-third of survey results, lower-priority hazards follow.

	Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Wildfire	3.82	4.18	4.55	4.18	2.91	3.93	1
Earthquake	4.09	4.18	2.82	5.00	2.27	3.67	2
Epidemic/ Pandemic	4.18	4.27	1.55	2.91	4.18	3.42	3
Severe Weather	3.05	3.09	3.50	2.57	3.02	3.05	4
Flooding	2.85	2.97	3.18	2.61	3.18	2.96	5
Mass Earth Movement	3.73	3.00	1.45	4.18	1.82	2.84	6
Tsunami	2.55	2.45	1.91	3.73	1.82	2.49	7

Table 4-2 – OCTA Worst-Case Scenario Hazard Ranking

Table 4-3 – OCTA Most-Likely Scenario Hazard Ranking

	Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Wildfire	3.73	3.64	4.45	4.00	3.55	3.87	1
Earthquake	3.09	3.82	3.09	4.82	1.91	3.35	2
Epidemic/ Pandemic	4.00	4.00	1.18	3.00	4.09	3.25	3
Severe Weather	2.59	2.75	3.39	2.61	3.05	2.88	4
Flooding	2.64	2.48	3.00	2.39	3.24	2.75	5
Mass Earth Movement	2.18	2.09	1.64	3.36	1.73	2.20	6
Tsunami	2.18	2.18	1.09	3.45	2.00	2.18	7

While the above table shows the seven consolidated hazard identification and ranking results, the survey results for all 12 unconsolidated results are available in Appendix D and G. Of the consolidated hazards (i.e., sea level rise, coastal erosion, drought, extreme heat, and storm surge), did not score in the top one-third of the survey results and are therefore not high-priority hazards on their own. This means that they may not have received mitigation strategies.

4.2.2 Quantitative Methods – Map-based Risk Assessment

The HMP includes the most current and accurate scientific data available. However, not all hazards had geospatial data available. Spatial data sets were retrieved from federal, state, county, and other applicable databases when available. These data sets determined the extent of each hazard, exposure, and vulnerability (i.e., risk). The HMP analysis assessed exposure and vulnerability levels related to people, property, critical infrastructure, and facilities within the planning area. GIS software produced numeric results and risk maps added to the hazard profiles in Sections 5 through 11 of this HMP. The maps also highlight where the hazards intersected with populations, properties, and critical infrastructures and facilities.

Hazards with available geospatial data were analyzed using GIS software to identify the planning area's risk vulnerability and exposure levels. The risk assessment incorporated the populations and socially and economically vulnerable populations when available, although the data was not available for all hazards. Additionally, the GIS analysis factored in the economic value of exposed structures and the overall hazard exposure of structures in the planning area.

4.2.2.1 HAZUS-MH Earthquake Assessment

The earthquake hazard risk assessment involved a HAZUS-MH analysis. HAZUS-MH is a GIS-based program used to support the development of risk assessments as required under the DMA. The HAZUS-MH software program quantitatively assesses risk to estimate damages and losses associated with some natural hazards. HAZUS-MH is FEMA's nationally applicable, standardized methodology and software program that contains modules for estimating potential losses from several types of hazards.

4.2.2.2 Exposures

OCTA Ridership – Annual bus ridership numbers inform OCTA planning area service and population trends. Bus ridership in 2019 was approximately 35.5 million total boardings for the year and 19 average boardings per day for each bus stop. Every time someone rides a bus, it is a "boarding." Boardings do not account for how many individuals ride OCTA buses; for example, one person can ride four buses in a day, which is four boardings.

Population Exposure – To estimate the population exposure for the planning area, the total population was based on US Census Bureau 2018 data and distributed across the OCTA GIS map data. The population data covers the entire service area for OCTA. Each hazard profile lists the population exposed to the hazard, broken down into vulnerable population demographics where the information is available. Socially vulnerable population categories include language, race, age, poverty, and disability. Vulnerable population definitions and demographics for the planning area are in Section 3.1.3. The hazard profiles assess risk for vulnerable populations to each hazard, detailed in Sections 5 to 11.

Structural Economic Exposure – Each hazard profile assesses disaster risk for OCTA owned structures in the planning area and includes potential damage to OCTA assets and critical facilities, their contents (e.g., vehicles), and total economic losses; they are:

Table 4-4 – OCTA Assets

Facility	Latitude	Longitude
Garden Grove Base	33 45' 49" N	117 55' 25" W
Santa Ana Base	33 42' 12" N	117 55' 32" W
Irvine Sand Canyon Base	33 40' 43" N	117 45' 19" W
Irvine Construction Circle Base	33 41' 46" N	117 49' 24" W
Anaheim Base	33 51' 26" N	117 53' 30" W
Newport Beach Transportation Center	33 36' 51" N	117 52' 06" W
Golden West Transportation Center	33 44' 03" N	117 59' 58" W
Laguna Hills Transportation Center	33 36' 25" N	117 42' 20" W
Fullerton Transportation Center	33 52' 10" N	117 55' 20" W
Fullerton Park and Ride	33 51' 31" N	117 58' 44" W
Brea Park and Ride	33 55' 32" N	117 52' 53" W
Administrative Facility 550/600	33 46' 44" N	117 52' 04" W
Transportation Security Operations Center	33 49' 54" N	117 56' 02" W

OCTA has identified the following types of facilities from the above list as critical facilities:

- Transportation Security Operations Center
- Transit Bases

FEMA defines critical facilities as all human-made structures or improvements that due to their function, size, service areas, or uniqueness have the potential to cause serious bodily harm, extensive property damage, or impact socioeconomic activities if the facilities are damaged, destroyed, or vital services are impaired (Federal Emergency Management Agency, 2007).

OCTA does not have any repetitive loss properties.

4.2.3 Data Sources

Table 4-5 below lists the data and data sources used to develop maps and tables.

 Table 4-5 - Geographic Information System Data Sources
 Information System Data Sources

Data	Source
OCTA 2022 Facilities	OCTA 2022
OCTA 2019 Ridership	OCTA 2022
Base Map	ESRI 2017
Wildland Urban Interface (WUI)	CalFIRE 2019
100-Year Storm Surge	US Geological Survey (USGS) 2018
COVID-19	California Department of Health 2020
Flood	FEMA

Data	Source
Landslide Susceptibility & Mapped Landslide Features	California Department of Conservation 2018, Wills, C. J., Perez, F. G., and Gutierrez, C. I., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey, Map Sheet 58
Average Maximum Temperature Increase	Scripps 2018
Post-Fire Soil Erosion	CalFIRE 2019
Potential Sea Level Rise	National Oceanic and Atmospheric Administration (NOAA)
Tsunami	California Department of Conservation 2009
Fire Hazard Severity Zones	CalFIRE 2019
Responsibility Area	CalFIRE 2019
Vulnerable Populations	US Census Bureau estimates for 2018

4.3 Limitations

Loss estimates, exposure assessments, and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and can arise from incomplete scientific knowledge concerning natural hazards and/or their effects on the built environment.

4.3.1 HAZUS-MH Limitations

The earthquake risk assessment HAZUS provides a default inventory of critical facilities and infrastructure. These facilities can be augmented with additional inventory. However, the program requires detailed information about the structure to predict how the facility will behave during a hazard event. Therefore, the HAZUS dataset analysis is not as comprehensive as the critical facilities dataset used for GIS assessed hazards because detailed information and economic values were not available for all OCTA structures.

5 Earthquake

5.1 General Background

The Earth's crust is comprised of tectonic plates, constantly moving at a prolonged rate (United States Geological Survey, 2016). Occasionally, the plates get stuck as they push against each other. Friction builds up between the plates when the plates do not move freely. Earthquakes result from friction released as energy that travels in waves through the ground, causing shaking on the surface (United States Geological Survey, n.d.). Surface shaking can be as short as a few seconds or start with one event followed by several more minor earthquakes over several days, known as tremors. These smaller seismic events that follow a more significant initial earthquake are called aftershocks.

Most seismic hazards occur on well-known active faults (Bolt, Earthquake, 2020). However, determining if a fault is active or potentially active depends on geologic evidence, which may or may not be available. Earthquakes are more likely to occur on faults with these conditions (Bolt, Earthquake, 2020):

- Pressure builds up more rapidly
- There were recent earthquakes
- Past earthquakes caused more significant displacements
- Faults are between plates and can relieve accumulated tectonic stresses

The fault types listed above are typically well documented. Depending on the proximity and depth of the earthquake's epicenter, ground shaking can still feel strong. In contrast, large regional faults can generate moderate magnitudes that result in only moderate shaking because of the epicenter's distance and depth. Lesser-known faults are challenging to predict since there is no historic geological data to inform predictions.

5.1.1 Potential Impacts from Earthquakes

Earthquakes can result in changes to the ground surface structure and placement. Ground shaking and displacement from an earthquake can lead to secondary impacts like mass earth movements and cascading effects, such as injuries and death and structural damage

DEFINITIONS

Aftershock – Lower-magnitude earthquakes that follow an initial primary earthquake.

Earthquake – A sudden shaking of the ground caused by seismic waves traveling through the earth.

Earthquake Magnitude – The seismic wave/amplitude measured and recorded by seismographs from an earthquake's epicenter. Magnitude is represented by a class name and numerical value from 3 to 8.

Epicenter (seismology) – The point on the ground's surface directly above the focus point where the fault ruptures.

Fault – A fracture in the Earth's crust where compression or tension pressure on causes displacement of soil and rock on the opposite side of the fracture.

Liquefaction – A loss of soil strength or cohesion that results in the soil behaving like a thick liquid (e.g., quicksand).

Modified Mercalli Scale – A measurement of the level of intensity felt on the ground's surface in populated areas, represented by a Roman numeral from I to X.

Surface Rupture – An area of the ground that is offset (raised, lowered, tilted) when a fault rupture reaches the surface of the ground. to buildings and infrastructure. Earthquakes can disrupt communications and damage utilities such as electricity, gas, sewer, and water lines. Older facilities and infrastructure built before stringent earthquake codes are particularly vulnerable. After an earthquake, entities must check their structures and utility lines for damage (Committee on Consumers and the Public Interest, 2019). Secondary and cascading impacts from earthquakes are addressed further in Section 5.3.

5.2 Orange County Transportation Authority Planning Area Hazard Profile

The California Earthquake Authority (CEA) provides earthquake data and statistics based on California counties. The Southern California Coast region is at risk from the San Andreas Fault and more than 100 minor active faults in the area (California Earthquake Authority, n.d.). Although the San Andreas Fault only reaches the northern edge of the OCTA planning area, a large earthquake on the fault line would radiate from the epicenter and likely significantly impact the entire planning area.

The CEA's analysis indicates a 75 percent likelihood the Southern California Coast will experience a 7.5 magnitude or greater earthquake on the San Andreas Fault-line before 2044 (California Earthquake Authority, 2020). After the San Andreas Fault, the next most significant fault affecting the planning area is the Newport-Inglewood fault. The Newport-Inglewood fault is 47 miles long; it starts at Culver City in Los Angeles County, goes through the City of Inglewood, continues through the City of Newport beach in Orange County, and becomes the Rose Canyon fault in San Diego County (California Earthquake Authority, 2020). Locations where earthquakes might occur within the planning area, are discussed in Section 5.2.3.

5.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. Survey results were prioritized and ranked based on their averaged score. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. Compared to the other hazards in the survey, earthquakes are the second worst-case scenario and the second most likely scenario.

Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Worst-Case Scenario						
4.09	4.18	2.82	5.00	2.27	3.67	2
Most Likely Scenario						
3.09	3.82	3.09	4.82	1.91	3.35	2

Tahle	5-1 -	ОСТА	Farthauake	Hazard	Rankina
TUDIE	J-1 -	OUTA	Luitiiquuke	nuzuru	панкіну

5.2.2 Past Events

Table 5-2 below includes a few significant earthquakes that affected the Orange County region and OCTA's planning area. Magnitude definitions are in Table 5-3, and modified Mercalli definitions are in Table 5-4.

Table 5-2 — Historical Earthquakes that Affected the Planning Area (Federal Emergency Management Agency, 2020) (Southern California Earthquake Data Center, n.d.) (Scharer)

Date	Event Name/Location	Maximum Mercalli Scale Recorded	Magnitude Class	FEMA Disaster Declaration ID
10/1/1987	Whittier Narrows	VIII (severe)	5.9	DR-799-CA
11/23/1987	Superstition Hills Events 1 & 2	VIII (severe)	6.2 & 6.6	-
1/17/1994	Northridge/Reseda	IX (violent)	6.7	DR-1008-CA
4/4/2010	El Mayor-Cucapah	IX (violent)	7.2	DR-1911-CA
7/4/2019	Ridgecrest	IX (violent)	7.1	EM-3415-CA

5.2.3 Locations Where Earthquakes Appear

5.2.3.1 Southern California Earthquake Zones

The fault map in Figure 5-1 shows the fault lines that can impact the OCTA planning area. The San Andreas Fault runs through the planning area, with multiple smaller active faults cutting vertically and horizontally across the entire planning area. Figure 5-1 also shows major faults in Southern California that can, and have, affected the planning area as indicated by the events in Table 5-2.





5.2.3.2 San Andreas Fault Zone

In the OCTA planning area, the most hazardous and well-known fault line is the San Andreas Fault. This fault occurs where the Pacific Plate and North American Plate meet. This entire San Andreas Fault system is more than 800 miles long and, in some areas, as deep as ten miles. The southern end of the fault runs right through the planning area (Schulz & Wallace, 1992). Significant offshoots that can also impact OCTA's planning area include the Garlock and Owens Valley faults north of the planning area and the Banning and San Jacinto faults that stretch through the planning area from north to south.

The San Andreas Fault generates micro earthquakes daily and triggers major earthquakes after decades of pressure buildup (United States Geological Survey, n.d.). The San Andreas Fault and its off-shoot faults have triggered events felt in the planning area. The 2010 El Mayor-Cucapah earthquake is the most recent

event included in Figure 5-1; it measured a 7.1 magnitude with a modified Mercalli scale of IX (violent) and impacted all three counties in the planning area.

5.2.4 Frequency

In the last 50 years, the OCTA planning area has experienced ten earthquakes registering from a 6.2 magnitude in Coalinga to the 7.2 magnitude earthquake that struck Baja California and was felt throughout the planning area (United States Geological Survey). Table 5-2 details these past earthquakes. Based on these events, OCTA's planning area is affected by a moderate to a major earthquake on average once every 6.8 years.

Potentially major (magnitude 7-7.9) or great (magnitude eight or higher) earthquakes on the San Andreas Fault are challenging to predict. The entire fault has numerous segments and offshoots with variable past events, most with decades or hundreds of years between major earthquakes. As shown in Figure 5-1, there were only two historical major earthquakes on the southern end of the fault line, one in 1812 and the other in 1852 (Wald, Scharer, & Prentice, 2017). The USGS and CEA warn the San Andreas section running through the planning area is past due for a major earthquake (California Earthquake Authority, 2020).

5.2.5 Severity

The southern end of the San Andreas Fault runs through the planning area. The fault could rupture and generate a powerful earthquake that would devastate the planning area (California Earthquake Authority, 2020). Scientists and planners use different scales to communicate about earthquake power. The audience receiving the information about earthquake risk and hazard determines which scale is used (i.e., scientists or the general public). The most common earthquake measurement scales for hazard mitigation are the Richter Scale and the Modified Mercalli Intensity (MMI) Scale.

Richter magnitude is recorded on a scale of 1 through 9 (Table 5-3). The Richter magnitude is measured by recording the ground vibrations emanating from the source, or epicenter, of an earthquake on a seismograph. The Richter magnitude is an absolute scale, meaning that it will not change with distance from the earthquake epicenter. In recent years, the Richter Scale has been replaced with the Moment Magnitude (M_w) scale. The M_w scale is a more effective method for measuring earthquakes at larger distances from the epicenter than the Richter Scale. While the Richter Scale is becoming less used, measured Moment Magnitude values are still converted to values comparable to the Richter Scale to determine the earthquake risk.

Magnitude Class	Magnitude Range (in numerical value)
Great	M > 8
Major	7 ≤ M < 7.9
Strong	6 ≤ M < 6.9
Moderate	5 ≤ M < 5.9
Light	4 ≤ M < 4.9
Minor	3 ≤ M < 3.9
Micro	M < 3

 Table 5-3 – Richter Earthquake Magnitude Classes (United States Geological Survey)

The MMI scale is an intensity scale ranging from I to X, where X is the most intense earthquake. The MMI scale measures the damage from earthquake shaking in a particular location. The MMI scale is subjective because it is based solely on observable data rather than measurements (Table 5-4). However, the MMI scale may be more effective when using it as a tool to communicate risk and hazard (USGS 2021).

The 2019 Ridgecrest events were the most recent large earthquakes to strike the OCTA planning area. The Ridgecrest earthquakes occurred on July 4 and 5, 2019 and consisted of three initial shocks of M_w magnitudes 6.4, 5.4, and 7.1 and several aftershocks. The shaking was felt by millions of people from as far north as San Francisco to as far south as Tijuana, Mexico (Byrd, 2019).

Intensity	Shaking	Damage Description
1	Not Felt	Felt by very few under the right conditions.
11	Weakest	Felt by a few people at rest, most likely on upper floors of buildings.
111	Weak	Noticeably felt by people indoors, especially on upper floors. However, people may not recognize it as an earthquake. Stopped cars may rock slightly. It would feel like a large truck passing.
IV	Light	Many people would feel shaking indoors and could wake people up at night. Loose items could move or fall, like vases or pictures. It might feel like a heavy truck hitting the building. Stopped cars would noticeably rock.
v	Moderate	Nearly everyone would feel this and would wake up many people at night. Items could break like windows and dishes falling out of cabinets. Light and unsecured objects will overturn, like small furniture and bookcases.
VI	Strong	Everyone will feel this. It can move heavy furniture. Older structures can have fallen plaster or masonry.
VII	Very Strong	Newer structures built with high seismic standards and basic building standards will have negligible damage. While older or poorly built structures can have considerable damage.
VIII	Severe	Slight damage to newer structures with high seismic standards. Considerable damage to structures with basic building standards and possible partial collapse. Chimneys, factory stacks, columns, monuments, and walls can fall. Heavy furniture can overturn.
IX	Violent	Newer structures with high seismic standards can have considerable damage. New structures with basic building standards can substantially damage, partial collapse, and/or shift off foundations. Older buildings can be destroyed.
x	Extreme	Some newer, well-built wood structures will be destroyed. Most older buildings with masonry and frame structures will be destroyed. Foundations can be damaged and rails bent.

Table 5-4 – Modified Mercalli Earthquake Scale and Descriptions (United States Geological Survey)

5.2.6 Warning Time

Earthquakes generally occur with little warning time. However, the CalOES managed Earthquake Warning California provides Californians with seconds to tens of seconds of warning before an earthquake is felt, enabling people to prepare (California Governor's Office of Emergency Services, n.d.). The warning system combines the MyShake smartphone app, the Android Earthquake Alerts system, and the national Wireless Emergency Alert to reach as many Californians as possible. The early warning system uses a network of ground motion sensors located across the state to detect an earthquake's first wave and the hazard (California Office of Emergency Management).

5.3 Secondary Hazards and Cascading Impacts

5.3.1 Secondary Hazards

Earthquakes may cause the following secondary hazards (Bolt, Earthquake: Geology, 2020):

- Surface ruptures (e.g., rising, tilting, dropping)
- Liquefaction
- Mass earth movements (e.g., landslides, rockslides, debris flows, mudflows)
- Dam and levee failure
- Tsunamis and seiches

5.3.1.1 Surface ruptures

Surface ruptures can alter the ground by pushing the ground up, dropping the ground, and tilting the surface's angle. Ruptures vary dramatically in size and depth. There are records of fault displacements ranging from one mile to 200 miles in length; typically, surface ruptures are found between six feet to 1,000 feet from the fault line (United States Geological Survey). Surface ruptures can damage anything on the impacted area before an earthquake changed the ground's shape.

5.3.1.2 Liquefaction

Liquefaction occurs when soils lose their shear strength and flow or turn the ground into a pudding-like liquid. Liquefaction can cause buildings and road foundations to lose load-bearing strength, resulting in structures and infrastructure sinking into quicksand-like soil where it was previously solid ground. To determine an area's soil structure and susceptibility to seismic hazards, the US Department of Agriculture, Natural Resources Conservation Service (NRCS) provides a Web Soil Survey library. The NRCS states this library is the single authoritative source for soil information in the US; it contains soil maps and data for more than 95 percent of US counties (United States Department of Agriculture Natural Resources Conservation Service, 2019).

Once the soil composition is determined, the National Earthquake Hazard Reduction Program (NEHRP) soil classification system explains an earthquake's amplifying effect on soft soils. This amplification is the average shear-wave velocity on the upper 100 feet of soil compared to the shaking amplification at the ground's surface (Palmer, et al., 2007). Seismic activity typically does not amplify or reduce B soils. However, earthquakes more easily alter increasingly softer C, D, and E soils. E soils are the most susceptible to liquefaction from seismic activity (Palmer, et al., 2007). Table 5-5 is the NEHRP system.

NEHRP Soil Type	Description	Mean Shear Velocity to 30 m (m/s)
А	Hard Rock	1,500
В	Firm to Hard Rock	760-1,500
С	Dense Soil/Soft Rock	360-760
D	Stiff Soil	180-360
E	Soft Clays	< 180
F	Special Study Soils (liquefiable soils, sensitive clays, organic soils)	

Table 5-5 – NEHRP Soil Classification System (Williams, Stephenson, Odum, & Worley, 1997)

5.3.1.3 Mass Earth Movements

An earthquake can cause a mass earth movement, such as a debris flow, landslide, rockslide, or mudslide. When the ground shakes, it can shift the earth causing the ground's surface to become unstable and fall or flow. The most common earthquake-caused landslides are rockfalls (United States Geological Survey). The extent of a mass earth movement is dependent on several factors, including the earthquake's magnitude, the focal depth of the epicenter, soil or ground composition, and duration of the shaking (United States Geological Survey). Mass earth movements and their risk to the planning area are covered more in Section 8.

5.3.1.4 Dam and Levee Failure

An earthquake may result in dam and levee failure. Historically, solid dams made from materials like concrete are minimally affected by earthquakes (Hiner, 2020). However, earthen dams and levees are highly susceptible to a mass earth movement caused by a seismic event. Several earthen dams and levees could impact OCTA's planning area if they were damaged or failed. Examples include, but are not limited to the following (Enjoy OC):

- The Santiago Dam Made from excavated dirt and rock that contains a 25,000 acre-feet reservoir
- Villa Park Dam An earthen flood control dam downstream from the Santiago Dam
- Walnut Canyon Reservoir An earth-filled and asphalt-lined structure with a water storage capacity of about 197 acre-feet, used by the City of Anaheim for potable water
- Sulphur Creek Dam A dam made of dirt fill with a capacity of 382 acre-feet and owned by Orange County
- Peters Canyon Dam An earth-filled dam with a capacity of 626 acre-feet depending on seasonal rainfall and owned by Orange County
- Prado Dam An earth-filled dam with water storage capacity of 2,255 square feet located in Riverside County, providing flood control and water conservation storage for Orange County

At the time of writing this plan, dam vulnerability data had been deemed not available for public use given its sensitive nature and therefore was not included in this study. Additionally, flood control systems can extend beyond the geographic footprint of the county and ownership ranges from federal, state, local, and private facilities.

5.3.1.5 Tsunamis and Seiches

Depending on the location, earthquakes can also trigger tsunamis and seiches. Seismic seiches are waves generated by an earthquake on lakes, reservoirs, ponds, and rivers (United States Geological Survey). A seismic seiche impact is limited to the area around the water body; although, the waves can cause erosion, flooding, and damage or destroy earthen dams and levees. Shallow marine thrust earthquakes that displace the seafloor are the most likely combination of factors to cause a tsunami; however, major strike-slip earthquakes have occasionally triggered small tsunamis (United States Geological Survey). Tsunamis and their potential impact on the OCTA planning area are discussed further in Section 10. OCTA planning area risks from flooding, erosion and sea level rise are in Section 6.

5.3.2 Cascading impacts

The earthquake itself and the earthquake's secondary hazards can also cause cascading impacts. The shaking ground from a seismic event can directly damage and/or destroy structures and infrastructure with the movement. Horizontal seismic motion generally causes more damage to structures than vertical
movement (United States Geological Survey). Surface ruptures, mass earth movements, and liquefaction can all directly cause structural damage to anything directly over or very near the ground displacement or liquefaction.

Continuing cascading impacts come from the structural damage caused by earthquakes and their secondary impacts. One, or a combination of, these impacts pose a risk of injury or death to people. These issues can include, but are not limited to:

- **Utility failures or outages** electricity, sewer, stormwater, transportation routes, systems, etc.
- Hazardous materials spill from storage facilities, along transportation routes, etc.
- Fires caused by broken gas and/or power lines (especially if broken water lines feed hydrants)

All earthquake impacts could affect OCTA staff, customers, and the community. Cascading effects can also, directly, and indirectly, impact OCTA's planning area, facilities, structures, and infrastructure.

5.4 Potential Impacts from Future Climate Conditions

The impacts of climate change on earthquake probability are unknown; however, secondary impacts from earthquakes can be magnified or more possible due to climate change factors (Mauger, Lee, & Won, 2018). For example, earthquakes can instigate fires, as indicated in the section above; this could lead to a significant wildfire event if it is compounded by climate change-influenced droughts. In addition, after an earthquake, mass earth movements may be more likely due to climate change, with increasing factors such as (Mauger, Lee, & Won, 2018):

- Increased wildfires depleting hillside vegetation
- Soil saturation from unusually high precipitation level
- Changes in river hydrology from more frequent and/or intense severe weather
- Weakened coastal slope stability due to SLR

5.5 Exposure and Vulnerability

For the hazard exposure and vulnerability analysis, OCTA used HAZUS-MH to evaluate a magnitude 8.2 earthquake scenario on the San Andreas Fault. This earthquake hazard scenario encompasses the entire planning area, and shaking is anticipated to be strong to very strong. The HAZUS-HM description and process are in Section 4.2.2 of this plan. Figure 5-2 shows the planning area exposed to earthquakes.

5.5.1 Population

5.5.1.1 Exposure

The entire population within the planning area is exposed to earthquakes, including the magnitude 8.2 San Andreas Fault scenario used for HAZUS-MH. The HAZUS-MH scenario intersected geospatial hazard data, and 2018 US Census Bureau estimates to assess population exposure and vulnerability in the planning area, covering almost 800 square miles, 582 census tracts, and nearly three million residents.

5.5.1.2 Vulnerability

The entire vulnerable population within the planning area is exposed to earthquakes. As discussed in Section 3.1.3, higher-risk vulnerable populations consist of low-income households, senior citizens, disenfranchised minorities, those that speak English as a second language or not at all, and children (FEMA, 2009). Vulnerable population demographic estimates:

- Persons over 65 years old 11.4 percent of the population
- Persons under 19 26.0 percent of the population
- Hispanic or Latino 34.2 percent of the population
- Black, American Eskimos, or Hawaiian/Pacific Islanders Less than one percent of the population
- Asian 17.7 percent of the population
- **Persons that speak a language other than English at home** 44.5 percent of the population
- Persons living below the poverty level 13.0 percent of the population

The entire vulnerable population within the planning area is exposed to liquefaction. Figure 5-3 shows the planning area exposed to liquefaction. Vulnerable population demographic estimates:

- **Persons over 65 years old** 5.8 percent of the population
- Persons under 19 26 percent of the population
- Hispanic or Latino 18.8 percent of the population
- Black, American Eskimos, or Hawaiian/Pacific Islanders 1.6 percent of the population
- Asian 11.7 percent of the population
- **Persons that speak a language other than English at home** 26.2 percent of the population
- Persons living below the poverty level 7.2 percent of the population

5.5.1.3 Property

All OCTA-owned and operated properties are exposed to earthquake hazards. However, only some of the OCTA-owned and operated properties are exposed to liquefaction. Reference Table 5-15 and 5-16 for specifics on Liquefaction.

5.5.1.4 Vulnerability

Older structures are more vulnerable to damage from seismic activity due to the adequacy of building codes. Table 5-6 lists building code milestones within the planning area, which can inform future property vulnerability analysis.

Table 5-6 – Age of Structures and Building Codes in Orange County (Wiley, 2020)

Date(s)	Significance of Time Frame
Pre-1925	Before 1925, there were no precise earthquake building code requirements in California.
1925-1933	The City of Santa Barbara was the first local government to adopt seismic reduction building codes in 1925.
1933-1960	After the 1933 Long Beach earthquake, the State realized earthquakes in California were not rare or one-time hazards, and the State rapidly enacted earthquake-resistant building codes.
1960-1972	In 1960, the Structural Engineers Association of California published guidelines on recommended earthquake provisions.
1972-1973	The 1971 San Fernando Valley earthquake inspired legislatures to propose 35 pieces of legislation, with more than five of these significant seismic safety acts passed in 1972.
1974-2000	California established the Joint Committee on Seismic Safety in 1974. In 1975, lateral force requirements made significant improvements. From 1974 to 2000, legislatures approved approximately 190 pieces of legislation on earthquake safety.
1990	The Seismic Mapping Act was passed in 1990 and addressed earthquake hazards associated with non-surface fault ruptures, liquefaction, and landslides (County of Orange and Orange County Fire Authority, 2015).

Date(s)	Significance of Time Frame
1994	In 1994, the Uniform Building Code (International Conference of Building Officials, 1994) was amended to include seismic safety provisions.
2000- Present	Seismic codes are enforced through building permits. The Seismic Safety Commission continues to inform and recommend seismic safety projects and renovations for buildings and infrastructure (Alquist, 2019).

5.5.1.5 Damage Estimates

Damage estimates for OCTA-owned and operated properties within the planning area were generated using HAZUS-MH for the San Andreas 8.2 magnitude scenario, the results of which are listed in Tables 5-7 to 5-10. The results include property loss for OCTA-owned and operated facilities, the types and counts of facilities impacted by strong shaking, the average probability of structure damage, and the anticipated average probability of full functionality in days after the earthquake scenario.

Facility Type	Facility Loss Value (in thousands \$)	Content Loss (in thousands \$)	Economic Loss (in thousands \$)
Administrative Facility	\$3,522	\$50,550	\$704
91 Express Lanes	\$216,954	\$8,775	\$51,528
Metrolink Expansion	\$18,312	\$0	\$5,465
Pacific Electric ROW	\$54,757	\$0	\$10,444
Park-and-Ride Facility	\$5,232	\$51	\$1,263
Santa Fe Rail ROW	\$112,249	\$0	\$34,070
Transit Base Facilities & Vehicles	\$186,567	\$368,715	\$5,708
Transit Center Facility	\$15,575	\$100	\$1,304
Transportation Security Operations Center	\$4,013	\$0	\$154
Unused Land/Property	\$13,089	\$0	\$2,358
Total	\$803,946.00	\$428,735.00	\$129,376.00

Table 5-7 – OCTA Facility Value Losses for the HAZUS-MH Scenario

Table 5-8 – OCTA Facilities Impacted by Strong Shaking in the HAZUS Scenario

Facility Type	Strong Shaking
Administrative Facility	2
91 Express Lanes	2
Metrolink Expansion	1
Pacific Electric ROW	1
Park-and-Ride Facility	4
Santa Fe Rail ROW	1
Transit Center Facility	13
Unused Land/Property	2
Total	65

Facility Type	No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Destruction
Administrative Facility	39%	29%	28%	4%	1%
91 Express Lanes	5%	57%	24%	10%	3%
Metrolink Expansion	4%	54%	26%	12%	4%
Pacific Electric ROW	10%	66%	17%	5%	1%
Park-and-Ride Facility	30%	38%	22%	7%	2%
Santa Fe Rail ROW	3%	53%	27%	13%	4%
Transit Center Facility	73%	19%	6%	2%	0%
Unused Land/Property	11%	67%	16%	5%	1%
Total	67%	22%	8%	2%	1%

Table 5-9 – OCTA Facility Average Probability of Structural Damage in the HAZUS-MH Scenario

Table 5-10 – OCTA Facility Average Probability of Full Functionality After the HAZUS-MH Scenario

Facility Type	Day 1	Day 3	Day 7	Day 14	Day 30	Day 90
Administrative Facility	39%	40%	67%	67%	95%	99%
91 Express Lanes	5%	8%	62%	62%	87%	97%
Metrolink Expansion	4%	6%	57%	57%	84%	96%
Pacific Electric ROW	10%	13%	76%	76%	93%	99%
Park-and-Ride Facility	30%	32%	69%	69%	91%	98%
Santa Fe Rail ROW	3%	6%	56%	56%	83%	96%
Transit Base Facility	82%	83%	96%	96%	100%	100%
Transit Center Facility	73%	73%	92%	92%	98%	99%
Transportation Security Operations Center	81%	81%	94%	94%	100%	100%
Unused Land/Property	11%	15%	78%	78%	94%	99%
Total	67%	68%	89%	89%	97%	99%

5.5.2 Critical Facilities and Infrastructures

Damage estimates for OCTA-owned and operated critical facilities and infrastructures within the planning area were generated using HAZUS-MH for the San Andreas 8.2 magnitude scenario, the results of which are listed in Tables 5-11 to 5-14. The results include property loss for OCTA-owned and operated facilities, the types and counts of facilities impacted by strong shaking, the average probability of structure damage, and the anticipated average probability of full functionality in days after the earthquake scenario.

Table 5-11 – OCTA Critical Facilit	v Value Losses	from the HA7IIS-MH	Farthquake Scenario
TUDIE 5-11 - OCTA CITLICUI FUCIIIL	y vulue Losses	JIOIII LIIE HAZOS-IVIH	Eurtinguake Scenario

Critical Facility Type	Facility Loss (in thousands \$)	Content Loss (in thousands \$)	Economic Loss (in thousands \$)
Transportation Security Operations Center	\$4,013	\$0	\$154
Transit Base Facilities and Vehicles	\$186,567	\$368,715	\$708
Total	\$190,580	\$368,715	\$862

Table 5-12 – OCTA Critical Facilities Impacted by Strong Shaking in the HAZUS Scenario

Critical Facility Type	No. Buildings of Experiencing Strong Shaking
Transportation Security Operations Center	1
Transit Base Facilities	35
Total	36

Table 5-13 – OCTA Critical Facility Average Probability of Structural Damage in the HAZUS-MH Scenario

Critical Facility Type	None	Slight	Moderate	Extensive	Destruction
Transportation Security Operations Center	81%	13%	5%	0%	0%
Transit Base Facilities	82%	14%	4%	0%	0%

Table 5-14 – OCTA Critical Facility Average Probability of Full Functionality After the HAZUS-MH Scenario

Critical Facility Type	Day 1	Day 3	Day 7	Day 14	Day 30	Day 90
Transportation Security Operations Center	81%	81%	94%	94%	100%	100%
Transit Base Facilities	81%	81%	94%	94%	100%	100%

Table 5-15 – OCTA Ownership of Environmental Parcels in Liquefaction.

Parcel Type	Acres
Pacific Horizon (proximal to Laguna Beach)	1.74
Trabuco Rose (proximal to Trabuco Canyon)	0.78
Wren's View (proximal to Trabuco Canyon)	2.33
Total	4.85

Table 5-16 – OCTA Infrastructure and Related Operations in Liquefaction.

Туре	Miles
Bus Route	699.41
I-405 Freeway	71.23
SR-91 Freeway	45.219
Other Freeway	191.87
Metrolink Rail	37.54
Pacific Electric ROW	11.79
Streetcar Route	2.55
Total	1059.609

5.6 Development Trends

Earthquakes are one of the most likely and geographically extensive hazards within the planning area. OCTA understands these risks and will continue to consider seismic hazards in their new and future projects. Building development in earthquake zones is also highly regulated through State and local plans, laws, and building codes. OCTA's Heath, Safety, and Environmental Compliance Department ensure all projects and operations comply with applicable health, safety, and environmental standards, codes, and regulations (Orange County Transportation Authority, 2014).

The Orange County General Plan directs overall land use, addresses growth management, and establishes standards and regulations to protect the community from hazards (Orange County). Chapter XI Growth Management Element incorporates OCTA in the

California Legislature Sec. 65302 Government Code

General plans must identify and protect the community from any unreasonable risks associated with seismic hazards; these risks include earthquakes, tsunamis, mass earth movements, and any other seismic hazards (California Legislative Information, 2018).

transportation development sections and includes plans and policies for traffic and public facility improvements to adjust for population increases (Orange County, 2020). The General Plan Chapter IX Safety Element provides building codes and standards to minimize exposure from all identified hazards. This section incorporates County emergency management, law enforcement, and fire management plans (Orange County, 2013).

Development plans include risk reduction measures, and growth management plans specific to transportation. The County states that it may not be responsible for some transportation projects but supports the transportation agencies leading these projects. Land-use planning and growth management are well managed by the County and designed to reduce seismic hazard risks.

5.7 Issues

Earthquake considerations in the OCTA planning area (Orange County Transportation Authority, 2020):

- Earthquakes could trigger secondary hazard events such as levee failures, landslides, or damage, potentially impacting the OCTA's customers, structures, infrastructure, and operations.
- New or renovated OCTA structures should include appropriate seismic building standards.
- Transportation routes may need to be altered immediately after an earthquake based on damage to infrastructure and OCTA's structures.
- Vulnerable populations may need additional transportation services after an earthquake.
- There could be considerable debris to clean up and possibly hazardous materials mixed, depending on the earthquake's magnitude and areas affected.

5.8 Hazard Maps

The maps of earthquake risks and liquefaction impacting the planning area is on the next page.



Figure 5-2 – OCTA HAZUS Earthquake Scenario Map





6 Epidemic/Pandemic

6.1 General Background

In the US, infectious diseases are a significant contributor to illness, disability, and death (Office of Disease Prevention and Health Promotion, 2020). Over the last few decades, outbreaks, epidemics, and pandemic events have increased, spreading faster and farther; this includes reemerging diseases and recently discovered diseases (World Health Organization, 2018). An epidemic is a significant and unexpected increase in disease cases. An outbreak is like an epidemic, but it is limited to a geographic area or group of people. Pandemics occur when a disease crosses multiple countries and infects a large number of people. For example, COVID-19 started in China in 2019 and spread rapidly across the world, resulting in a global pandemic in 2020 (Centers for Disease Control and Prevention, 2020).

Infectious disease-causing agents can be viruses, bacteria, parasites, fungi, or parasites (Mayo Clinic Staff, 2019). Communicable diseases can be spread by direct contact from animal to person or person to person, indirect contact by touching a contaminated surface or object, insect bites, contaminated food or water, or inadequate medical sanitation (Mayo Clinic Staff, 2019). Chemicals or toxins can also cause outbreaks, such as "Jamaican ginger paralysis," and on occasion, the cause of a disease is unknown (World Health Organization).

An individual can be at risk from an infectious disease or chemical/toxic agent from ingestion, inhalation, or direct skin contact; radiation is the only exposure that can be external, traveling to the individual (Agency for Toxic Substances and Disease Registry, 2005). Some agents have multiple means of spreading, others only by bodily fluids.

Infectious diseases can be seasonal, such as influenza. In contrast, others may be rare but have a high mortality rate, like Ebola and hemorrhagic fevers (Cole, 2014). Some diseases occur after a disaster due to contaminated food and water, such as E. coli (Centers for Disease Control, 2019). Unfortunately, it is rare to eradicate diseases, and new ones are continually discovered (World Health Organization, 2018).

DEFINITIONS

Communicable Disease – an illness transmitted from an infected agent to an animal or individual through direct or indirect contact.

Disease Vector – an agent that carries and transmits infectious diseases, such as an insect, fungus, or animal.

Epidemic – happens when there is a significant and unexpected increase in disease cases.

Essential Workers – individuals that work in roles that are critical to infrastructure operations.

Herd Immunity – when enough of the population becomes resistant to a disease by recovering from the illness or vaccination.

Infectious Diseases – medical conditions/illnesses caused by organisms like bacteria, viruses, fungi, or parasites.

Mortality Rate – a mathematical measure of the frequency that individuals die in a defined population during a specific period of time.

Outbreak – similar to an epidemic but limited to a specific geographic area or group of people.

Pandemic – occur when a disease crosses multiple countries and infects a large number of people.

6.1.1 Potential Damage from Epidemics

Epidemics and pandemics can significantly impact mortality rates, social and mental health, the economy, and disrupt travel operations (Madhav, et al., 2017). Diseases and mortality rates can disproportionally affect vulnerable populations. These populations can include younger people who have not built up immunity, older individuals and people with underlying health conditions that lower their immune systems, and low-income or non-citizens who do not have access to affordable medical care (Madhav, et al., 2017). The disproportional impact can exacerbate the over-taxed emergency response and healthcare communities. A single outbreak can overrun a local emergency response and healthcare systems' resources and staff. Additionally, overwhelmed medical facilities reduce non-infectious disease medical and mental care (Bloom, Cadarette, & Sevilla, 2018).

An infectious disease event can have societal impacts that affect individuals and the economy. Infection control measures can lead to a temporary closure of schools and businesses and reduce transportation and public services (Bloom, Cadarette, & Sevilla, 2018). These measures and infectious diseases can cause general stress to an affected community and more severe mental health issues for some individuals. The stress can trigger concerns about a person or loved one's health, changes in sleep and eating, difficulty sleeping or concentrating, chronic medical and/or mental health problems increasing, and increased use of mood-altering substances (e.g., tobacco, alcohol, illegal drugs) (Centers for Disease Control, 2020).

6.2 Orange County Transportation Authority Hazard Profile

Epidemics and pandemics do not need to start in the OCTA planning area to impact OCTA's customers, staff, and operations. Transit operations, by virtue, are an essential service and does not allow the same protections as stay-at-home or remote work positions. The entire OCTA planning area is at risk from known-preventable diseases and newly introduced or reemergent diseases that do not have vaccines yet. Childhood vaccination percentages are a strong indicator of community resilience to known-preventable diseases and a cost-effective method for preventing these dangerous diseases (Office of Disease Prevention and Health Promotion, 2020). Orange County's childhood vaccination statistics are a good representation of vaccine percentages in the planning area.

There are 28 school districts in Orange County. The districts' 2016 records for kindergarteners showed the percentage of students with the required immunizations ranged between 86.3 percent and 98.2 percent (Orange County's Healthier Together, 2016). Orange County's vaccination percentages are high and a positive indication of vaccination levels in bordering counties. Therefore, the OCTA planning area has a low risk of an outbreak or epidemic from vaccine-preventable diseases. However, unvaccinated visitors and new residents can bring new or variant infectious diseases to the area, as revealed during the COVID-19 pandemic.

OCTA 2020 COVID-19 Pandemic Narrative

2020-current, OCTA March responded to the COVID-19 Pandemic. Strategies taken included specific task forces to address ongoing items (Return to work, local infection rate monitoring, vaccinations, and others), as well as enhanced communications and partnerships with relevant stakeholders in the community. OCTA was asked to assist in transporting medical providers to specific community clinics, as well as partner with other trusted community transportation organizations to get members of the underserved communities to/from vaccination clinics.

6.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. Survey results were prioritized and ranked based on their averaged score. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. Compared to the other hazards in the survey, epidemics/pandemics were ranked third for the worst-case and the most likely scenarios.

Severity	Magnitude	Frequency	Onset	Duration	Average	Rank	
Worst-Case Scenario							
4.18	4.27	1.55	2.91	4.18	3.42	3	
Most Likely Scenario							
4.00	4.00	1.18	3.00	4.09	3.25	3	

Table 6-1 – OCTA Epidemic/Pandemic Hazard Ranking

6.2.2 Past Events

The OCTA planning area was directly affected by two pandemic events in the last decade, H1N1 and COVID-19. In 2009, a pandemic of H1N1 influenza, popularly known as swine flu, resulted in many hospitalizations and deaths. In Orange County, there were 226 cases of severe illness and 57 deaths

associated with H1N1 through August 9, 2010 (Orange County Mosquito and Vector Control District, 2020). In Appendix G Table G-6 lists diseases and rates for Orange County.

Throughout 2020 and the development of this plan, OCTA and the world responded to the COVID-19 pandemic. This virus had an unprecedented effect globally and directly influenced transportation operations. On May 4th, 2021, the COVID-19 rates for Orange County there are 270,345 infection cases and 4,969 deaths. (Orange County Health Care Agency, 2021)

HMP Planning During COVID-19

This plan was developed during the 2019 COVID-19 pandemic. A more in-depth review of COVID-19 and its effects will be in the 2026 HMP update.

6.2.3 Location

While it is difficult to anticipate where an epidemic or pandemic may spread, contact tracing is helpful for mapping out the locations and persons infected with a contagious disease. During an epidemic or pandemic, OCTA can support the Centers for Disease Control (CDC) and local public health efforts by preparing OCTA's staff and their operations and providing contact trancing information.

6.2.4 Frequency

Historical events indicate that epidemics and pandemics are happening more frequently and spreading farther over the past century. This increase is likely due to multiple factors, such as increased global travel, economic globalization, urbanization, and increased population growth in natural environment areas (Madhav, et al., 2017). Orange County shows a rise from 2015 to 2019 in certain infectious diseases:

Table 6-2 – Increasing Rates of Infectious Diseases in Orange County from 2015-2019 (Orange County Health Care Agency, 2019)

Disease Name	Agent	Vector	2015	2016	2017	2018	2019
Campylobacteriosis	Bacteria	Flies	398	488	544	575	651
Coccidioidomycosis "Valley Fever"	Fungus	Mosquitos	186	116	211	242	320
Shigellosis	Bacteria	Flies	69	71	96	178	176

6.2.5 Severity

The severity of an epidemic or pandemic varies loss of life in five of

Figure 6-1 – CDC Workplace and Community Recommendations by Pandemic Severity Category (Centers for Disease Control)

an epideniic or				
for numerous		Pand	emic Severity	Index
as how it is	Interventions by Setting	1	2 and 3	4 and 5
airborne or skin- how contagious	Workplace/Community Adult social distancing			
w long it can live d how long an ntagious before	-decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
ms. The CDC's y Index describes categories:	 -increase distance between persons (e.g., reduce density in public transit, workplace) 	Generally not recommended	Consider	Recommend
ss than 90,000),000 < 450,000 50,000 < 900,000	-modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
00,000 < 1.8 1.8 million	–modify workplace schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

reasons, such transmitted (e.g., to-skin contact), the disease is, how on surfaces, and individual is co showing sympto Pandemic Severity

- Category 1: le
- Category 2: 90
- Category 3: 45
- Category 4: 90 million
- Category 5: >

The CDC has provided category-specific strategies to mitigate the severity of a pandemic/epidemic (Figure 6-1). Additionally, the CDC developed a Pandemic Severity Assessment Framework (PSAF) for public health officials to determine the seriousness of an infectious disease (Centers for Disease Control, 2016). There are two steps for health officials to follow, an initial assessment early on during a pandemic and a refined evaluation that happens when more information becomes available (Centers for Disease Control, 2016). The federal, state, and local public health agencies will provide instructions to all organizations and individuals based on the severity of a pandemic and the infectious diseases' transmission methods.

6.2.6 Warning Time

Warning time for an epidemic or pandemic varies between a few hours to a few months, depending on the disease type, OCTA's proximity to the outbreak's origin, and the disease's contagious properties. The CDC explains that an outbreak will often start in countries with little medical resources. From there, highly contagious diseases can spread from remote communities to major urban areas around the globe in as little as 36 hours, growing from a localized outbreak to a pandemic (Centers for Disease Control, 2020). To manage potential pandemics in the initial phase, the CDC operates the Health Alert Network (HAN) to share public health information. The network is accessible to government and tribal organizations and furnishes critical data to plan and respond to public health issues (Centers for Disease Control, 2020).

The CDC sends and receives vital epidemic/pandemic data from state and local public health departments. Orange County Public Health administers the Communicable Disease (CD) Health Alert system. Any organization can subscribe to this system and receive immediate public health issues (Orange County Public Health, 2020). Infectious disease alerts and warnings give OCTA up-to-date information to support a timely response to an epidemic or pandemic, mitigating the severity and spread as much as possible. Table 6-3 below lists the CDC's HAN levels, also used in the planning area.

Table 6-3 – Epiaemic/Panaemic Alert Levels (Centers for Disease Control, 2014	Table	6-3 –	Epidemic,	/Pandemic	Alert Le	vels (Cente	rs for	Disease	Control,	2014
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Level	Description
Alert	The highest level of notification and requires immediate action or attention
Advisory	Provides significant information about a specific event or situation, may not need immediate action
Update	Provides new information regarding an incident or situation, unlikely to need immediate action
Info Service	General information that is not necessarily an emergency at the time it is reported

6.3 Secondary Hazards and Cascading Impacts

6.3.1 Secondary Hazards

There are no apparent secondary hazards that an epidemic or pandemic could cause. However, epidemic/pandemics can interfere with mitigation strategies for other risks. For example, organizations may prioritize prevention methods and emergency response strategies during a concurrent natural hazard or natural hazard season (Quigley, Attanayake, King, & Prideaux, 2020). Organizations may need to balance difficult decisions between pandemic control and protective measures and natural hazard prevention, such as clearing dry vegetation for wildfire fuel management. For example, an epidemic/pandemic can challenge fuel load management to mitigate wildfires due to reduced on-site staff capacity.

6.3.2 Cascading Impacts

An epidemic or pandemic may force transportation agencies to cancel and/or reduce the frequency at which routes are serviced due to diminished staff capacity from having contracted the virus and being unable to work. Transportation agencies may anticipate staffing shortages and proactively cancel or reduce the frequency of service, or they may seek to accept staffing shortages and subsequent service delays as they occur.

6.4 Potential Impacts from Future Climate Conditions

Climate and land use are significant factors influencing where disease-carrying insects live (Centers for Disease Control, 2020). Even slight temperature differences affect where insect populations live and what diseases they carry. Insects such as fleas, ticks, and mosquitoes can carry diseases like Lyme, West Nile, malaria, Zika, etc. Temperature increases predicted for the planning area are in Section 9.

As temperatures in the OCTA planning area rise, these insects carrying diseases will likely migrate in increasing numbers. There are also ideal temperatures where certain diseases spread the most effectively; malaria spreads best at 78 degrees and Zika at 84 degrees (Jordan, 2019). The World Health Organization (WHO) identified potential climate change factors that would increase the number of infectious disease outbreaks and types of diseases that could occur in the planning area (World Health Organization, 2020):

- Increased use of dams, canals, and irrigation to manage water flow changes can increase the risk of schistosomiasis, malaria, and helminthiasis
- As annual average temperatures change, new agricultural areas can succumb to infestation, increasing the risk of malaria and Venezuelan hemorrhagic fever
- Deforestation and populations spreading into wildland interurban areas can cause a rise in insect populations bringing malaria, oropouche, and visceral leishmaniasis
- Conversely, reforestation to combat tree loss can increase the risk of Lyme disease

6.5 Exposure & Vulnerability

6.5.1 Population

All OCTA customers and staff could be at risk from an infectious disease affecting the area. An epidemic or pandemic typically affects vulnerable populations disproportionately, including those with compromised immune systems, pre-existing medical conditions, individuals over the age of 65, and individuals with limited access to adequate health care.

6.5.2 Property

Epidemics and pandemics do not typically impact property directly. However, secondary impacts on the economy and persons can influence property management and operations, such as epidemics/pandemics, making hazard prevention methods more challenging, as discussed in Section 6.3.1. Adjustments can be made to existing buildings and new projects, such as improving heating, ventilation, and air conditioning systems. This includes improving ventilation; improving air filtration; increasing cleaning and sanitizing procedures and frequency; allowing more space for social distancing; and delaying construction projects (Megahed & Ghoneim, 2020). Additionally, OCTA can consider situational adjustments for concurrent natural hazard prevention with epidemic/pandemic safety procedures.

6.5.3 Critical Facilities

During the COVID-19 pandemic, OCTA implemented safety accommodations to reduce exposure and spread risks at their critical facilities. The mitigation measures did not require significant changes to the structures, and diseases cannot directly damage the facilities. OCTA can consider building these epidemic and pandemic safety measures into future developments where applicable.

6.6 Development Trends

To accommodate the expected development in the planning area, OCTA has undertaken many developments and renovation projects; then, COVID-19 swept through the planning area. OCTA adapted to the pandemic and adjusted projects as needed to continue development and renovations safely. OCTA also communicated all updates through its website, blog, and social media, keeping the public informed (Orange County Transportation Authority, 2020). These adjustments and procedures can inform planning area development in future epidemic/pandemic incidents. Epidemics and pandemics can significantly impact development and community growth, although the impacts are likely temporary, lasting only as long as the infectious disease continues to spread (Derven, 2020). Long-term growth in the Planning Area is still expected (United States Census Bureau, 2019).

6.7 Issues

Pandemic/Epidemic considerations in the planning area (Orange County Transportation Authority, 2020):

- A sharp decline in ridership can mean revenue loss and temporary service changes.
- Safety and operations during an outbreak can require enhanced cleaning, processes, policies and procedures, and health-messaging solid campaigns (e.g., wearing masks and personal protective equipment for employees).
- Transit agencies must continue to provide critical route services, including carrying health care
 workers and other essential workers to their jobs and customers to medical services.
- While everyone can use public transportation, low-income and elderly populations typically depend on it as their primary form of transport.

6.8 Hazard Maps

The hazard map for COVID-19 cases in the planning area is on the next page.





7 Flood, Sea-Level Rise, and Cliff Erosion

7.1 General Background

Floods are the most common hazard in the US, occurring when water overflows onto naturally or altered dry lands (Ready.gov, 2020). Climate change is the primary cause of Sea Level Rise. Erosion is the natural process of removing surface ground material (soil, sand, rocks, etc.) from one area and transferring the material to another location, usually by wind or water (Editors of the Encyclopedia Britannica, 2020).

Rain, snow, coastal storms, storm surges, damaged dams and levees, or other damaged water control systems can all cause floods (Ready.gov, 2020). A flood can develop over time, such as during an unusually stormy season, or occur rapidly with little warning, like when a levee breaks and releases all the stored water at once. Depending on the extent of the event that triggers a flood, effects can be localized to a single neighborhood or block or extend as far as an entire region affecting multiple states. Riverine flooding and urban drainage can cause flash floods, depending on the geography and the event triggering the flood. It is the most dangerous type of flood due to the high-water flow velocity and large debris the water can carry (Federal Emergency Management Agency). Flooding categories (Federal Emergency Management Agency):

- Riverine Flooding happens when water overtops the banks of a river, lake, or stream and spills onto the adjacent land and is the most common type of flooding. Typically caused by excessive or prolonged rains and can include flash floods, dam and levee failures, and alluvial fan flooding.
- Urban Drainage "stormwater management" is physical and natural systems used by people in developed areas to eliminate surface water and stormwater runoff as quickly as possible by directing it into closed water management systems. Flooding can happen when these

DEFINITIONS

100-Year Floodplain – an area inundated by a flood with a one percent chance of being equal or greater each year.

500-year Floodplain – an area inundated by floodwaters that has a 0.2 percent chance of being equal or greater each year.

Alluvial Fans – are found in dry mountainous regions where rock and soil erode from mountainsides and built up on valley floors in a fan shape.

Coastal Flood – occur by seawater and coastlines, often due to severe weather events and cause coastline erosion.

Flash Flood – a rapid rise in water with a high flow velocity that carries debris. Flash floods have enough force to pull up and carry significant amounts of large debris (e.g., cars and trees).

Floodplain – an area of land neighboring a waterway or waterbody that is known to be flood prone.

Stormwater Management – physical and natural systems used by people to control and regulate the flow of surface and stormwater runoff.

Storm Surge – when a coastal flood happens at the same time as a high-tide, causing the coastal flood to reach father and bring more water than it would during a lower tide. systems back up or when the incoming water exceeds the system's capacity.

- Coastal Flooding and Cliff Erosion are floods that occur by seawater and coastlines, often caused by severe weather events. When a coastal flood coincides with a high tide, it is called a storm surge. Strong waves from storms can significantly increase the rate of cliff erosion.
- Ground Failures subsidence and liquefaction can cause flooding in the immediate area, while
 mass earth movements can release or carry water with a mudslide, mudflow, or debris flow. These
 mass earth movements with flooding can be exceptionally damaging due to the water and ground
 material's force and the debris they can carry.
- Fluctuating Lake Levels can be a seasonal process with standard weather patterns or can be caused by unusual heavy rainfalls.

SLR is affected by melting ice sheets and glaciers and average annual temperatures increasing brings an influx of water into the oceans, raising seawater levels (Administration, 2020). As sea levels rise, extreme coastal events (e.g., storm surges) can become more frequent and severe (Pörtner, et al., 2019). Additionally, as SLR continues, water that connects to the oceans spreads farther inland, resulting in expanded fluvial flooding (Pörtner, et al., 2019).

Erosion occurs when the movement of water removes the ground and carries it to another location. Water can erode coastlines, bluffs, cliffs above a waterway or body, along rivers and creeks, and anywhere the water movement can remove and transport loose material. The motion and force of sea waves along a coast can significantly alter the shore's shape (Editors of the Encyclopedia Britannica, 2020). Flooding can cause unexpected or increased erosion due to the force of the water's flow and water in unusual locations. Wind erosion is most common in deserts and arid lands where the wind picks up and moves loose ground material (Editors of the Encyclopedia Britannica, 2020).

7.1.1 Potential Damage from Floods, Sea Level Rise, and Cliff Erosion

Several factors influence the type and severity of damage from a flood, such as a floodwater's depth, length of time an area or a structure remains inundated, contents carried in the floodwater, and how rapidly the water moves (Federal Emergency Management Agency). Flood severity is discussed further in Section 7.2.5. Structures often suffer compounding damage the longer they are in the water; wood and carpet are especially susceptible. Structures in standing water can grow mold and fungi quickly and attract insects. These growths and insects can carry infectious diseases, which are covered more in Section 7.3.1. It can also be difficult to tell how deep the flood water is; cars can be submerged even by slow-moving water when it washes away the road or ground beneath, and a driver tried to continue through a flooded roadway.

On the other hand, rapidly moving water carries momentum and force that can damage structures, infrastructure, and injure or cause loss of life from the water impact or the debris carried in the water. Even six inches of fast-moving water can knock a person down, and a foot of water can move a car (Ready.gov, 2020). Erosion and flooding can impact waterways, causing higher than normal water levels for extended periods, harming people, structures, and infrastructure.

7.2 Orange County Transportation Authority Hazard Profile

Flooding, SLR, and cliff erosion can significantly impact OCTA's planning area, structures, and infrastructure. The map in Figures 7-2 displays areas exposed to 100-year and 500-year floods. The

primary source of riverine flooding in the planning area is the Santa Ana River and the extended network of channels and flood control systems associated with the river (Orange County Public Works).

To manage and mitigate all sources of flood risks in Orange County, the Public Works Department oversees 350 miles of flood control facilities designed to direct water flow from storm drains and runoff into the bay and ocean (Orange County Public Works). These systems include structures such as dams, levees, drains, and underground pipes.

Despite the mass amount of flood control systems, severe weather can overwhelm them, such as when flash floods damage the systems from the force of the water or debris impact. When water management systems overflow or collapse, they can inundate areas around the systems. Orange County Public Works warns that the East Garden Grove-Wintersburg Channel and Ocean View Channel cannot contain a 100-year flood as water has overtopped several spots already (Orange County Public Works). Areas near Santiago Creek and Collins Channel and unincorporated Orange County sections are also prone to flooding (Orange County Public Works).

Coastal flooding can occur when severe weather causes high waves or storm surges and sea level rise increases, leading to increased cliff erosion. Therefore, almost all OCTA's coastline rail system is subject to storm surges, coastal flooding, cliff erosion, and sea level rise. Figures 7-3 show the planning area coastline at risk from 100-year storm surges, and Figure 7-4 estimates sea level rise at 1, 2, and 3 feet.

7.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. Survey results were prioritized and ranked based on their averaged score. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. Compared to the other hazards in the survey, floods are the fifth worst-case and most likely scenario.

Severity	Magnitude	Frequency	n Hazard Rankin Onset	^g Duration	Average	Rank	
Worst-Case Scenario							
2.85	2.97	3.18	2.61	3.18	2.96	5	
Most Likely Scenario							
2.64	2.48	3.00	2.39	3.24	2.75	5	

7.2.2 Past Events

Since 1969, there have been 15 flood events that have resulted in FEMA disaster declarations in the planning area (Federal Emergency Management Agency, 2020). Between 1956 and 2020, NOAA recorded 23 flash floods in the planning area, resulting in nine deaths and four injuries. A comprehensive list of disaster declarations is in Appendix G, Table G-4. NOAA records that resulted in an injury, death, or cost equal to or above \$25,000 in property damage for both counties are in Table G-5 (National Oceanic and Atmospheric Administration). A few of the most consequential flood events recorded by NOAA or resulting in a disaster declaration since 2000 are in Table 7-2 below.

Date	Severe Weather Type	Deaths/ Injuries	Property Damage	FEMA Declaration
2/10/2000	Heavy Rain	1 death 4 injuries	\$300,000	
1/11/2001	Flash Flood	0	\$1,000,000	
1/7/2005	Heavy Rain	0	\$5,000,000	
1/7/2005	Heavy Rain	0	\$15,000,000	
2/18/2005	Heavy Rain	0	\$20,000,000	
2/20/2005	Flash Flood	0	\$1,000,000	
4/14/2005	Severe storms, flooding, landslides, debris/ mudflows			DR-1585-CA
12/15/2008	Heavy Rain	14 injuries	\$250,000	
3/8/2010	Severe winter storms, flooding, debris/mudflows			DR-1884-CA
12/19/2010	Flood	0	\$36,000,000	
12/22/2010	Flash Flood	0	\$12,300,000	
1/26/2011	Winter storms, flooding, debris/mudflows			DR-1952-CA
3/16/2017	Severe winter storms, flooding, mudslides			DR-4305-CA
1/2/2018	Wildfires, flooding, debris/mudflows			DR-4353-CA

Table 7-2 – Significant Flood Events in the Planning Area (National Oceanic and Atmospheric Administration) (Federal Emergency Management Agency, 2020)

7.2.3 Location

Figures 7-2 to 7-4 are maps of the OCTA planning area exposed to a 100-year and 500-year flood, a 100-year storm surge, and SLR inundation from a 1, 2, and 3-foot increase. The planning area's entire coastline is at risk from coastal flooding, SLR, and cliff erosion. OCTA's critical facilities, structures, parcels, and infrastructure prone to these hazards are in Tables 7-7 through 7-13. Additionally, OCTA identified specific sections of rail exposed to these risks, including:

- Segments of rail in Mission Viejo near where the rail is in the trench
- Downstream of Oso Creek, where it flows into a channel vertical banks on the west side have experienced erosion, although not infringing on the rail line
- The approximately seven-mile coastal rail section

7.2.4 Frequency

The OCTA planning area is susceptible to seasonal rainfalls and unpredictable severe weather events leading to flooding. Between 1969 and 2010, 17 disaster declarations were for flood events in the planning area (Federal Emergency Management Agency, 2020). The average number of disasters declared flooding events in OCTA's planning area is approximately 2.6 per year. However, FEMA's list in Table G-4 does not indicate flood declarations are happening more frequently (Federal Emergency Management Agency, 2020).

NOAA recorded seven flooding events and 24 flash floods that caused a person's injury or death or cost \$25,000 or more in property damage (National Oceanic and Atmospheric Administration). Six of the NOAA

flood records happen in the last 20 years, and only one occurred in the 44 years prior (National Oceanic and Atmospheric Administration). Many factors could have influenced this significant increase in significant flood events from 2000, such as climate change, growing populations in flood zones, or more structures built in flood zones after 2000.

The NOAA flood reports indicate that flood frequency has increased over time, even though they have not increased disaster declarations. NOAA first recorded flash flood events in 1997; since then, flash floods in OCTA's planning area have occurred on average once every six months (National Oceanic and Atmospheric Administration). Increased populations and new infrastructure and structures that altered water's natural flow could attribute to this rise in records. Development trends are discussed more in Section 7.6.

So far, NOAA only reported one significant coastal flood event in 2005 and two storm surges in 1997 and 2001 (National Oceanic and Atmospheric Administration). SLR predictions for the planning area are in Figure 7-4. Twenty-five years of data from European and National Aeronautics and Space Administration (NASA) satellites revealed that SLR is accelerating faster than expected (Weeman & Lynch, 2018). Currently, NASA estimates SLR could double what it would be if the levels were rising at a constant rate (Weeman & Lynch, 2018).

NOAA's list includes numerous instances of high surf, which can increase coastline flooding and shoreline erosion. OCTA's coastline is likely to be increasingly affected by SLR and erosion as it continues to accumulate, causing more coastal flooding, high surf, and storm surges. Based on National Aeronautical and Space Administration (NASA) data, climate change significantly accelerated SLR's natural increased rate, which will lead to more frequent and severe SLR events, coastal flooding, and coastline erosion in OCTA's planning area. The effects of climate change, detailed in Section 7.4.

7.2.5 Severity

The severity of a flood is dependent on the amount, velocity, and area covered. One of the most significant flood threats in Orange County is from the Santa Ana River and the extensive network of the river's connecting flood management systems (Orange County Public Works). FEMA states that rivers are the most common source and often costliest type of flooding (Federal Emergency Management Agency). The Santa Ana River extends from the San Bernardino Mountains out to the Pacific Coast through Orange County. Heavy rains can build up vast amounts of water in the mountains and pick up incredible velocity down the steep mountainside (Federal Emergency Management Agency). This rapid influx of water can result in dangerous flash floods and debris/mudflows. As indicated in Section 7.2, although extensive flood control measures are in place, areas connected to the Santa Ana River are also at risk from flooding.

7.2.6 Warning Time

Flooding events can occur quickly or over days to weeks. The cause of the flood typically dictates the length of warning time. For example, there is minimal warning time for flash floods, but slow-moving rainstorms can build up surface water over days and weeks, eventually resulting in flooding (Ready.gov, 2020). Alternatively, SLR and cliff erosion take years to accumulate significant impacts.

The Orange County Public Works department maintains and monitors an advanced flood warning system called ALERT (Automated Local Evaluation in Real-Time), a rainfall and water level sensor network that enables real-time storm tracking.

The ALERT system details (Orange County Public Works):

- Applies 130 sensors in more than 80 locations
- Measures precipitation, the water level in regional flood control channels, temperature, barometric pressure, wind velocity and direction, relative humidity, and snow
- Updates information is sent out every eight minutes during storm events and strategically deploys resources to critical locations

For the planning area, the NWS San Diego Office assesses potential weather and flood event factors to determine when to send emergency notifications and what level of warning to set. The NWS San Diego Office lists ten types of warnings and information text notifications they can issue (National Weather Service San Diego, 2020):

- Flash Flood Warning there is an immediate risk to life and property from rapidly moving floodwater
- Flash Flood Statement additional information to the flash flood warning
- Flood Warning sent when floodwaters will affect life and property
- Flood Statement additional information on flooding streams and rivers, risks to urban areas, and updates or cancelation of the flood warning
- Flood Watch when there is a potential for flooding
- Hydrologic Outlook long-range predictions and information on the current conditions
- River and Lake Summary daily observations and predictions for river and lake conditions
- Hydrologic Summary daily observed conditions
- Hydrologic Statement additional forecasts and information
- Drought Information Statement drought information

There are no emergency alert notifications for SLR or cliff erosion. However, OCTA is in the process of developing a rail infrastructure study Defense Against Climate Change Plan that considers OCTA's planning area exposure to flood, SLR, and erosion to mitigate these hazards before becoming an emergency. The planning area counties also have risk assessments and adaptation strategies for flood, SLR, and erosion (County of Orange and Orange County Fire Authority, 2015) (Hazen, 2019).

7.3 Secondary Hazards and Cascading Impacts

7.3.1 Secondary Hazards

Flooding, SLR, and cliff erosion can cause secondary hazards. Slopes destabilized by water inundation can erode and result in mass earth movements (e.g., landslides, mudslides, and debris flow), particularly on steep slopes and in areas with less vegetation after a wildfire. Mass earth movements are discussed further in Section 8 of this plan. Structures exposed to water for a length of time can be prone to growing mold, fungi, and attract insect populations. An outbreak or epidemic can occur due to infectious disease-carrying agents in contaminated water or food, increased insect populations that breed in waterways like creeks and ponds, and mold growing in damp structures. Epidemics and Pandemics are in Section 6.

7.3.2 Cascading Impacts

Flooding can damage infrastructure, resulting in communications, transportation, and utility disruptions. OCTA's structures, land parcels, and infrastructure exposed to 100-year and 500-year floods, 100-year storm surges, and 1, 2, and 3 feet of SLR are in Tables 7-7 to 7-13. These disruptions can directly damage OCTA's structures and infrastructure, challenging operations. Disruptions can also indirectly impact operations through downed communications and services, structures, or infrastructure that OCTA relies

on for continuity. SLR and erosion are slower moving hazards yet can result in infrastructure disruptions. OCTA conducts a rail infrastructure defense against climate change plan to understand better where and how these hazards can impact the planning area. According to the plan, the approximately seven-mile rail segment along the coast is at the highest risk from SLR and cliff erosion.

7.4 Potential Impacts from Future Climate Conditions

Climate change's influence will likely increase OCTA's planning area's flood risks, including storm intensity and frequency that will expand flooding areas and depths (Hazen, 2019). More frequent and severe storms will also increase the risk of river flooding and associated secondary hazards in the planning area. Additionally, climate change affected storms and SLR interconnect to increase coastal risks from flooding and erosion. The 2018 California Fourth Climate Change Assessment report stated that out of the five coastal counties in Southern California, the three counties that overlap the OCTA planning area are the most vulnerable to climate change impacts on the coast (Erikson, et al., 2018). These effects include coastal flooding, SLR, and severe coastal weather that can increase storm surges and erosion.

NASA's 2018 research study conservatively predicts that by 2100, sea levels will increase by 26 inches due to climate change (Weeman & Lynch, 2018). On the other hand, SLR predictions vary even between government agencies depending on the climate modeling technology and data sets they use. Although the exact amount of SLR by year is impossible to predict, even a one-foot increase by 2100 will impact OCTA's planning area, as shown in Figure 7-4. A two to three-foot increase is more significant.

Any SLR caused by climate change will permanently expand coastal lines and flooding boundaries, and further erode land along the coast. OCTA's rail infrastructure defense against climate change plan assesses the potential impacts to the planning area coastline. The Rail Infrastructure Defense Against Climate Change Study (completed January 2021) emphasizes the risk of combined coastal hazards influenced by climate change. For example, the Pacific Ocean can produce significantly high waves during storms; in conjunction with SLR and/or heavy precipitation, storms can easily lead to 100-year storm surge inundation levels. An example of combined water-level events is in Figure 7-1 below.





7.5 Exposure

7.5.1 Population

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for flooding (100- and 500-year flood events) and SLR (1, 2, and 3 feet) indicate population exposure to each hazard type and socially vulnerable subgroups. Table 7-3 shows that up to nearly 1.8 million boardings could be impacted by 100-year flood events and more than 16 million for a 500-year flood event.

Table 7-3 – Bus Stop Ridership Exposed to 100 and 500-Year Flood Zones

Ridership	100-Year Flood Zone	500-Year Flood Zone
Total	1,797,145	16,422,896

Population	100-Year	500-Year
Black	2,649	27,258
American Eskimo	1,089	8,522
Asian	42,168	261,822
Hawaiian/Pacific Islander	728	5,379
Hispanic	60,025	484,041
Multiple Races	7,694	48,113
Children up to 19 Years Old	49,310	325,854
65 Years and Older	24,265	126,092
Below the Poverty Level	25,967	184,110

Table 7-4 – Populations at Risk to 100 and 500-Year Flood Zones

Table 7-5 projects that nearly 9,000 OCTA bus stop boardings may be impacted by one foot of SLR, while nearly ten times that amount may be impacted by three feet of SLR. There are nearly 1.7 million minority and mixed-race individuals at risk at one-foot SLR, approximately 757 thousand individuals aged 19 and below, over 332 thousand seniors, and over 375 thousand low-income households. As sea level rises to above two and three feet, these population numbers also increase.

Table 7-5 – Bus Stop Ridership Exposed to Sea Level Rise at 1, 2, and 3 Feet

Ridership	1 Foot SLR	2 Feet SLR	3 Feet SLR
Total	8,808	25,029	82,835

Table 7-6 – Populations Totals Vulnerable to Sea Level Rise at 1, 2, and 3 Feet

Population Type	Above 1 Foot SLR	Above 2 Feet SLR	Above 3 Feet SLR
Black	620	1,356	2,651
American Eskimo	400	618	1,072
Asian	6,000	15,894	24,957
Hawaiian/Pacific Islander	124	191	398
Hispanic	19,877	34,638	59,981

Population Type	Above 1 Foot SLR	Above 2 Feet SLR	Above 3 Feet SLR
Multiple Races	2,171	4,460	7,926
Age 0-19	15,140	29,115	49,580
Age 65 and Over	5,720	11,063	22,622
Below the Poverty Level	8,750	15,438	25,091

7.5.2 Property

GIS analysis indicates five OCTA structures are in the 100-year floodplain, and 14 structures are in the 500-year floodplain, shown in Tables 7-7 and 7-8. Table 7-9 shows OCTA's land-use parcels and acreage within 100-year and 500-year floodplains, while tables 7-10 and 7-11 indicate types and counts of infrastructure in those floodplains. Facilities exposed to sea level rise from 1 ft, 2 ft, and 3 ft increase are shown in tables 7-12 and 7-13.

National Flood Insurance Program

Special districts, like OCTA, are not eligible to participate in the National Flood Insurance Program.

Table 7-7 – OCTA	Ruildinas	Exposed to	100-Year	Floodnlain
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Building Type	Number of Buildings	Building Value	Contents Value
Fullerton Park and Ride	3	\$4,236	\$43
Brea Park and Ride	1	\$996	\$8
Garden Grove Transit Base	1	\$25,819	\$88,226
Total	5	\$31,051.00	\$88,277.00

Table 7-8 – OCTA Buildings Exposed to 500-Year Floodplain

Building Type	Number of Buildings	Building Value	Contents Value
Fullerton Park and Ride	3	\$4,236	\$43
Brea Park and Ride	1	\$996	\$8
Garden Grove Transit Base	3	\$77,701	\$178,988
Anaheim Transit Base	7	\$30,633	\$61,116
Total	14	\$113,566	\$240,155

Table 7-9 – OCTA Ownership of Environmental Parcels in 100-Year Floodplain

Parcel Type	Acres
Eagle Ridge (proximal to City of Brea)	1.77
Trabuco Rose (proximal to Trabuco Canyon)	5.52
Wren's View (proximal to Trabuco Canyon)	0.27
Total	7.55

Table 7-10 – OCTA Ownership of Environmental Parcels in 500-Year Floodplain

Parcel Type	Acres
Eagle Ridge (proximal to City of Brea)	3.47
Pacific Horizon (proximal to Laguna Beach)	0.06
Trabuco Rose (proximal to Trabuco Canyon)	5.52
Wren's View (proximal to Trabuco Canyon)	0.27
Total	9.31

Table 7-11 – OCTA Infrastructure and Related Operations in 100-Year Floodplain

Туре	Miles
Bus Route	62.24
I-405 Freeway	4.011
SR-91 Freeway	0.815
Other Freeway	18.176
Metrolink Rail	4.36
Pacific Electric ROW	1.48
Streetcar Route	0.47
Total	91.552

Table 7-12 – OCTA Infrastructure and Related Operations in 500-Year Floodplain

Туре	Miles
Bus Route	435.88
I-405 Freeway	24.058
SR-91 Freeway	35.600
Other Freeway	121.220
Metrolink Rail	26.33
Pacific Electric ROW	9.69
Streetcar Route	1.72
Total	654.498

Table 7-13 – OCTA Infrastructure/Operations Vulnerable to a 1-3 Foot Sea Level Rise in Miles

Туре	1 Foot SLR	2 Foot SLR	3 Foot SLR
Bus Route	1.55	4.32	10.99
Other Freeway	0.12	0.14	0.22
Total	1.67	4.46	11.21

7.5.2.1 Vulnerability

A GIS analysis estimated which structures would be affected by flooding, looking at flooding depth and the type of structure. The analysis is summarized in Tables 7-7 and 7-8 for the 100-year and 500-year flood events, respectively.

7.5.3 Critical Facilities

There are no critical facilities or infrastructures in the 100-year floodplain, however there is one critical facility in the 500-year floodplain shown in Table 7-14.

Table 7-14 – OCTA Critical Facilities Within OCTA's 500-Year Floodplain

Critical Facility Type	Number
Transportation Security Operations Center	1
Total	1

7.5.3.1 Vulnerability

A GIS analysis estimated the flood loss potential to critical facilities exposed to the flood risk. The facilities exposed are in Section 7.5.3 above, and the resulting map in Figure 7-2.

7.5.4 Environment

Environmental changes can be natural or human-made and can shift the frequency, location, and severity of flooding, sea level rise, and cliff erosion. Environmental influences on these hazards can affect the OCTA planning area in the short and long term, especially structures and infrastructure in the hazards' immediate area. An impaired or modified environment, including land development, can flood new or less common areas, increase coastal and bank erosion, and cause more severe flooding (City of Newport Beach, 2014). Flood control systems can increase stream bank erosion, causing rivers and streams to migrate and permanently change flood patterns.

7.6 Development Trends

As discussed in this section, multiple factors have also increased flooding, sea level rise, cliff erosion frequency and severity, and expanded flood zone boundaries in OCTA's planning area. The US Census Bureau predicts that Orange County's population will increase by 5.5 percent between 2010 and 2019 (United States Census Bureau, 2019). Therefore, regularly updated risk maps must inform development in an exposed area, particularly as climate change reshapes flood zones and coastlines (Federal Emergency Management Agency). OCTA will minimize flooding, sea level rise, and erosion risks to future projects in the planning area by following government regulations and incorporating mitigation measures into new and renovated developments.

OCTA's Long-Range Transportation Plan lists sea level rise, and associated cliff erosion is a significant hazard for transportation infrastructure. Structures and transportation infrastructure, designed to last for decades, make it vital to consider the long-term impacts of sea level rise and erosion, especially on the Pacific Coast Highway and rail sections along the coast (Orange County Transportation Authority, 2018). This HMP identifies and evaluates sea level rise and erosion risk methods to inform updates to other OCTA plans.OCTA will incorporate development and repair project mitigation strategies across organizational plans to avoid and minimize hazards where possible.

State and county land-use requirements guide OCTA's development projects in areas exposed to flooding. California Legislature Section 65302 of the Government Code states that general plans must include land-use elements that identify and annually review planning areas vulnerable to flooding, using FEMA's and/or the Department of Water Resources floodplain mapping (California Legislative Information, 2018). In the Orange County Code of Ordinances, Section 7-9-42: FP (Floodplain) Overlay District provides land-use regulations and maps to prevent and reduce the effects of flooding in known hazardous areas (Orange County, 2020).

Another development factor to consider, urban expansion in flood-prone areas increases the impervious surface area preventing water from being absorbed by the ground; this increases the likelihood of flood events and expands flood zones (Konrad, 2016). This condition is exacerbated by peak rain events when the ground around the impervious surfaces is quickly saturated, increasing the storm-runoff rate (Konrad, 2016).

7.7 Issues

Flood, sea level rise, and cliff erosion considerations in the OCTA planning area:

- Flood control systems will not prevent all flooding in the planning area.
- Continue climate change studies to understand future flood risks, especially new data and improved technology, to provide more accurate predictions.
- Educate customers on flood preparedness and transportation resources available during and after floods.
- Flood, sea level rise, and cliff erosion hazards overlap other hazards, such as mass earth movements, epidemics/pandemics, and severe weather. There is an opportunity to implement mitigation strategies that can reduce risks from multiple hazards.

7.8 Hazard Maps

The hazard maps for flood, storm surges, and sea level rise are in Figures 7-2 to 7-4, starting on the next page.













8 Mass Earth Movements

8.1 General Background

A mass earth movement is defined as a landslide, mudslide, rockfall, sinkhole, or debris flow, and generally occurs for two reasons (United States Geological Survey):

- When up-slope ground material does not have the strength to overcome the downslope gravity pull
- When a force acts on the material (e.g., water, avalanche, earthquake), causing it to detach from the slope and move downhill

Several other hazards can trigger mass earth movements, such as severe weather, SLR, flooding, earthquakes, tsunamis, and wildfires (Editors of Encyclopedia Britannica, 2015). Natural changes to the environment can destabilize slopes and influence mass earth movements, such as surface water levels, stream erosion, groundwater movement, or any combination of these factors (United States Geological Survey). Humans can also generate mass earth movements by modifying the environment by removing vegetation and trees, destabilizing them.

There are three types of geologic materials, bedrock, debris and earth, and five forms of slope movements; examples of these forms are in Figure 8-1 (United States Geological Survey, 2004):

 Flow – Includes debris flows, debris avalanches, earth flows, mudflows, and creeps

DEFINITIONS

Debris Flow – A form of rapid mass movement in which loose soil, rock and sometimes organic matter combine with water to form a slurry that flows downslope.

Landslide – A large amount of rock, debris, or earth that travels down a slope.

Mass Movement – A collective term for landslides, debris flows, falls and sinkholes.

Mudslide (or Mudflow) – A river of rock, earth, organic matter, and other materials saturated with water.

Sinkhole – A collapse depression in the ground with no visible outlet. Its drainage is subterranean. It is commonly vertical-sided or funnel-shaped.

Slope Failures – Occur when the strength of the soils forming the slope is exceeded by the pressure, such as weight or saturation, acting upon them.

- **Topples** Characterized by a rotation of the materials around a pivot point as they move downward
- Slides Refers to an area of weakness where the unstable layer separates from the stable underlying layer
- Spreads Unique because the material moves laterally on gentle slopes or flat ground, caused by liquefaction
- Fall An abrupt down-slope movement of large materials (e.g., rocks and boulders) off steep slopes or cliffs

8.1.1 Potential Damage from Mass Earth Movement

Mass earth movements can damage or destroy infrastructure, structures and cause human injury or loss of life. Mass movements that occur quickly and without warning are the most dangerous and deadly, as people do not have time to react or evacuate the hazard area (Ready.gov, 2020). They can travel several miles from the point of origin and grow as debris is collected and added to the mass movement (Ready.gov, 2020). Displaced ground material can dam waterways, such as rivers, and result in flooding. Blocked or broken roads will delay emergency responders and critical supply shipments. An event can occur with little to no warning, increasing the likelihood of damage from such an event.

Figure 8-1 – Diagrams of Mass Movement Forms (US Geological Survey Department of the Interior/USGS)



8.2 Orange County Transportation Authority Hazard Profile

OCTA's planning area is exposed to all types of mass earth movements (County of Orange and Orange County Fire Authority, 2015). Mapped landslide areas are in Figure 8-3. Deep-seated landslide susceptibility in the planning area is in Figure 8-4. Deep-seated slides are often more than ten to 15 feet deep and are instigated by deep infiltration of rainfall over weeks or months (United States Geological Survey). Planning areas at risk of soil erosion after a wildfire, shown on the map in Figure 8-5.

Orange County's emergency preparedness program ranks landslides as one of the County's top five hazards, stating the hazard frequently occurs in the area (Ready OC). The Orange County 2015 HMP emphasizes the serious role humans can play in escalating landslide risks through development (County of Orange and Orange County Fire Authority, 2015). In 2019, the California Department of Conservation conducted a landslide hazard mapping study by county and identified the following highway routes in Orange County are exposed – Routes 73, 241, and 246 (Wills, et al., 2019).

A mass movement on these highway routes could impact OCTA customers, staff, structures, and infrastructure or cause potential delays to services and supplies required for business operations. Common causes of movements that can impact the area include heavy or extended rain periods, slopes destabilized due to wildfire, and coastal slopes and cliffs affected by sea waves and erosion (United States Geological Survey). A landslide may take the form of a slide, fall, flow, or a combination of the three.

8.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. Survey results were prioritized and ranked based on their averaged score. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. Compared to the other hazards in the survey, mass earth movements were the seventh worst-case scenario and sixth most likely scenario.

Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Worst-Case Scenario						
2.55	2.45	1.91	3.73	1.82	2.49	7
Most Likely Scenario						
2.18	2.09	1.64	3.36	1.73	2.20	6

Table 8-1 – OCTA Mass Earth Movement Hazard Ranking

8.2.2 Past Events

In the planning area from 1969 to 2020, 15 FEMA disaster declarations involved mass earth movements (Federal Emergency Management Agency, 2020). Disaster declarations are in Appendix G, Table G-4. Table 8-2 shows some of the significant past landslides and their effects on the planning area.

Year(s)	Event Name	Total Cost	Damage
1969	Glendora	\$26.9 million	175 homes damaged
1977-1980	Monterey Park and Repetto Hills	\$14.6 million	100 homes damaged
1979	Big Rock	\$1.08 billion	Damage to Highway 1
1980	-	\$1.1 billion	
1978-1980	120 slides reported	9 slides cost over \$1 million	-
1983	San Clemente	\$65 million	Damage to Highway 1
1983	Big Rock Mesa	\$706 million	13 condemned houses, 300 houses threatened
2005	Blue Bird Canyon	Billions of dollars, a total number not available	17 homes destroyed, 11 homes damaged, 23 homes threatened

8.2.3 Location

OCTA's critical facilities, structures, parcels, and infrastructure prone to these hazards are in Tables 8-8 through 8-15. It is not always possible to remove the physical geology and natural hazards that instigate mass earth movements. However, quality research studies, effective engineering practices, and robust land-use and management regulations can minimize life, infrastructure, and property risks (United States Geological Survey).

8.2.4 Frequency

In the planning area there were 15 mass earth movement disaster declarations through FEMA over the last 30 years; approximately one event every two years. Natural hazards, such as earthquakes, heavy rain, floods, and vegetation loss after a recent wildfire often trigger these events. In general, the frequency of mass earth movement is related to the frequency of these other hazards, which may occur at any time of year.

8.2.5 Severity

Mass earth movements with little or no warning tend to be the most destructive, as it may not be possible to evacuate the area or brace for impact. Other factors contributing to the severity of mass earth movement events include a slope's steepness, which impacts the rate of travel, the amount and size of debris transported, and the development density of the area affected (Ready.gov, 2020). Debris flows are usually the most dangerous mass earth movement as they often start rapidly and may carry large objects like boulders, vehicles, homes, and trees (United States Geological Survey).

8.2.6 Warning Time

The warning time associated with mass earth movements depends on the rate of travel. As noted in the severity section above, the most dangerous movements have a rapid onset since there is little or no warning time. Heavy rains and recent wildfires that make slopes more prone to movement are strong indicators of a possible movement. Movements with the longest warning time happen over an extended period, such as creeps that can move in inches per year.

The San Diego NWS Office and the Operational Area EOC monitor mass earth movement conditions and send out watches, warnings, and evacuation notifications through the EAS when there is an immediate risk (Ready.gov, 2020). Upon receiving these notifications, OCTA strategies will range from evaluating the potential impact on OCTA operations and notifying relevant departments to mobilize assets to support evacuating communities if requested. Additionally, the Orange County Public Works Department provides information on mudflow predictions and protection, burned area reports, and burned area maps with recent fire damage to warn residents of potential mass earth movements after wildfires (Orange County Public Works). When received, this information can be used to adjust operations to protect OCTA assets proactively.

8.3 Secondary Hazards and Cascading Impacts

8.3.1 Secondary Hazards

Following a mass earth movement, the most common secondary hazard is flooding from fallen materials blocking waterways such as rivers (United States Geological Survey). Risks from flooding in OCTA's planning area, covered in Section 7, including the Santa Ana River and various water channels, which mass earth movements can block. Mass earth movement materials that get into drinking water supplies can reduce water quality.

8.3.2 Cascading Impacts

Mass earth movements can damage or destroy roads and other transportation infrastructure, utilities, and structures and cause injury or death. Blocked roads can disrupt OCTA's services and delay supplies or other business' services needed for operations. Utility damage or destruction can result in power and communication loss. Energized downed powerlines and broken gas lines can start fires and lead to injuries or death. Mass earth movements can carry large debris, even vehicles and buildings, which means

hazardous material inside, potentially releasing them into the environment. There is also a risk of destabilizing structural foundations, making it essential to have a qualified person inspect affected buildings before reentering (Ready.gov, 2020).

8.4 Potential Impacts from Future Climate Conditions

Climate change could cause more mass earth movements due to increased frequency and severity of storms, SLR, erosion, and wildfires, all of which raise the likelihood of mass earth movements (United States Geological Survey). Along the coastline, storms, SLR, and erosion can combine to put coastal cliffs at high risk for landslides. Unlike erosion, which happens slowly over time, these cliff mass movements can happen suddenly, releasing large amounts of ground material at once. Example images of three coastal landslides in southern California are in Figure 8-2.

Droughts may increase in occurrence and duration, increasing the chances for wildland fires, affecting vegetation that helps support steep slopes. Increased frequency and intensity of severe weather can inundate areas with more water than is typical, adding to the risk of slides from water-saturated soils. These factors are projected to increase the probability of a mass earth movement within the OCTA planning area (County of Orange and Orange County Fire Authority, 2015).

8.5 Exposure

8.5.1 Population

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for deep-seated landslides and post-fire soil erosion shows population exposure to each hazard type. Post-fire soil erosion classifications delineate the level of risk

for a post-fire debris flow, ranked from class one to three. Populations at risk from post-fire landslide susceptibility with soil class one to three (one is the lower risk and three is the highest), in Table 8-6; ridership exposed to post-fire landslides are in Table 8-3.

The soil class map data comes from CalFIRE. Their soil analysis represents soil loss averaged over time in the total area using the Revised Universal Soil Loss Equation best estimate in a post-wildfire environment. There are nearly 600,000 individuals at risk from class one post-fire soil erosion and over 45,000 in a class three soil area. 2019 ridership in all three classes of post-fire land susceptibility areas was over 41,000 boardings combined.

Mapped landslide exposure is in areas that have known and mapped landslide features. Mapped landslides in the planning area are in Figure 8-3. These features include deposits, sources, and other mapped signs of landslide risk. Deposits indicate where previous slides left debris at the end of the flow. Landslide sources and other signs are data layers that show where previous landslides came from or started (United States Geological Survey). There were approximately 8.5 thousand boardings in 2019 in areas with mapped landslide features.

Figure 8-2 – Coastal Cliff Landslides in Southern California (Collins, 2014)






Susceptibility to deep-seated landslides was also measured. The levels range from one to ten, where one is the lowest likelihood of sliding and ten is the highest risk. These estimates are based on regional rock strength and slope steepness (California Department of Conservation). Table 8-4 indicates bus ridership susceptibility to landslides from levels three to ten. There were no values for levels one and two. In the level four landslide susceptibility area, there were over 523 thousand boardings in 2019.

Table 8-3 – Bus Stop Ridership Exposed to Mapped and Post-Fire Landslide Susceptibility

Ridership	Post-Fire Landslide Susceptibility	Mapped Landslides
Total	41,911	8,518

Table 8-4 – Bus Stop Ridership Exposed to Landslide Susceptibility from Level 3 to 10

Ridership	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Total	193	523,415	500	409,996	190,200	59,614	193	19,016

8.5.1.1 Vulnerability

Populations within the OCTA planning area at risk from mapped mass earth movements are in Table 8-5 below. The results show the highest exposure is to "other landslide features." In this category, minority and mixed-race individuals in the zone total almost 200,000; 86,000 individuals are 19 years old or younger; nearly 44,000 are seniors; and over 37,000 living below the poverty level.

Table 8-5 – Populations at Risk from Mapped Landslides

Populations	Other Landslide Feature	Landslide Deposits	Landslide Source
Black	7,319	332	162
American Eskimo	1,827	144	78
Asian	77,883	2,773	2,279
Hawaiian/Pacific Islander	1,137	97	49
Hispanic	94,187	4,361	2,247
Multiple Races	14,133	1,460	813
Children up to 19 Years Old	86,001	6,970	3,772
65 Years and Older	43,911	5,152	4,323
Below the Poverty Level	37,187	2,529	1,365

Populations at risk from post-fire landslide susceptibility with soil class one to three (with one as the lower risk and three as the highest risk) are in Table 8-6; soil class one has the highest population.

Table 8-6 – Populations at	Risk from Post-Fire	2 Landslides Soil Types 1 to 3	
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Populations	Soil Class 1	Soil Class 2	Soil Class 3
Black	10,799	7,825	503
American Eskimo	4,100	2,983	183
Asian	102,979	80,205	6,516
Hawaiian/Pacific Islander	2,215	1,695	125

Populations	Soil Class 1	Soil Class 2	Soil Class 3
Hispanic	232,631	174,958	6,741
Multiple Races	24,244	17,998	1,904
Children up to 19 Years Old	161,899	118,323	9,776
65 Years and Older	63,914	52,051	6,441
Below the Poverty Level	90,511	59,165	3,382

Populations at risk from landslide susceptibility levels three and five to ten (with one as the lowest risk and ten as the highest) are in Table 8-7; there is no class one, two, or four population exposure in the planning area. At the highest level of risk, level ten, the vulnerable population numbers are the greatest.

Level 5 Level 6 Level 8 Level 9 Level 10 **Populations** Level 3 Level 7 Black 3,133 7,417 1,148 12,391 7,825 6,904 5,501 958 2,580 330 2,192 2,240 American Eskimo 3,804 2,500 Asian 25,615 69,280 15,480 119,406 60,268 61,216 68,357 540 1,432 256 1,157 1,409 Hawaiian/Pacific Islander 2,177 1,007 Hispanic 59,031 132,170 18,886 227,713 123,905 140,513 123,468 **Multiple Races** 5,680 16,500 2,834 27,003 14,349 16,421 14,727 Children up to 19 Years Old 38,262 101,872 16,697 170,318 91,951 105,133 99,131 65 Years and Older 11,743 46,102 6,107 72,777 43,078 48,899 44,142 Below the Poverty Level 19,922 50,491 8,360 87,328 47,452 45,494 383,905

Table 8-7 – Populations at Risk from Landslide Susceptibility Level 3, and 5 to 10

8.5.2 Property

There are no OCTA-owned buildings exposed to mapped landslide hazards by building type. The planning risk areas are displayed in Figure 8-3. Table 8-8 and 8-9 lists Authority parcels and infrastructure exposed to mapped landslides. Tables 8-10 to 8-11 lists areas vulnerable to a landslide after a wildfire.

The GIS dataset used for the landslide susceptibility combines several layers, including landslide inventory, geology, rock strength, and slope, to generate susceptibility classes from zero at the lowest to ten at the highest (California Department of Conservation, 2018). Tables 8-13 to 8-15 show levels of susceptibility to landslides in the planning area. Landslide susceptibility ranges from levels 3 to 10. OCTA buildings are found in levels 5 and 7.

Table 8-8 – OCTA Owned Environmental Parcels Exposed to Mapped Landslides

Parcel Type	Acres
Eagle Ridge (proximal to the City of Brea)	81.53
Live Oak Creek (proximal to the City of Lake Forest)	8.83
Pacific Horizon (proximal to the City of Laguna Beach)	62.90
Silverado Chaparral (proximal to Silverado Canyon)	49.32
Trabuco Rose (proximal to Trabuco Canyon)	20.95

Parcel Type	Acres
Wren's View (proximal to Trabuco Canyon)	0.21
Total	223.74

Table 8-9 – OCTA Infrastructure and Related Operations Exposed to Mapped Landslides

Infrastructure Type	Miles
Bus Route	5.73
Other Freeway	20.25
Metrolink Rail	0.38
Total	26.36

Table 8-10 – OCTA Property Exposed to Landslides After a Wildfire with Soil Classes 1-3

Building Type	Soil Class 1	Soil Class 2	Soil Class 3
Park and Ride	1	0	0
Total	1	0	0

Table 8-11 – OCTA Owned Environmental Parcels in Acres Exposed to Landslides After a Wildfire Soil Classes 1-3

Land Use	Soil Class 1	Soil Class 2	Soil Class 3
Bobcat Ridge (proximal to the City of Lake Forest)	4.83	33.36	
Eagle Ridge (proximal to the City of Brea)	38.04	174.10	68.97
Live Oak Creek (proximal to the City of Lake Forest)	12.52	57.85	5.28
Pacific Horizon (proximal to the City of Laguna Beach)	5.80	63.30	66.10
Silverado Chaparral (proximal to Silverado Canyon)	26.84	98.60	77.64
Trabuco Rose (proximal to Trabuco Canyon)	103.65	282.10	7.85
Wren's View (proximal to Trabuco Canyon)	27.21	89.76	
Total	218.88	799.94	225.80

Table 8-12 – OCTA Infrastructure and Related Operations in Miles Exposed to Landslides After a Wildfire

Infrastructure Type	Soil Class 1	Soil Class 2	Soil Class 3
Bus Route	14.31	2.72	0.28
I-405 Freeway	2.293	0	0
SR-91 Freeway	1.764	0	0
Other Freeway	30.451	22.738	1.574
Metrolink Rail	2.293	0	0
Total	51.111	25.458	1.854

Table 8-13 – OCTA Buildings Landslide Susceptibility Class 3 to 10

Building Type	Class 5	Class 7
Brea Park and Ride	1	
Transit Center		1
Total	1	1

Table 8-14 – OCTA Environmental Areas (Acres) Landslide Susceptibility Class 3 to 10

Land Use Type	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10
Bobcat Ridge (proximal to the City of Lake Forest)	0	7.01	0	0.77	8.33	31.58	0	0.23
Eagle Ridge (proximal to the City of Brea)	0	14.30	0	3.42	19.60	157.80	0	97.95
Live Oak Creek (proximal to the City of Lake Forest)	0	6.50	0	2.85	8.50	49.37	0	14.46
Pacific Horizon (proximal to the City of Laguna Beach)	0	8.23	0	0.64	13.01	63.26	0	66.22
Silverado Chaparral (proximal to Silverado Canyon	2.65	11.30	5.24	18.32	30.26	112.63	2.65	21.71
Trabuco Rose (proximal to Trabuco Canyon)	52.70	18.30	59.78	65.54	40.45	88.40	52.70	35.34
Wren's View (proximal to Trabuco Canyon)	0.08	16.92	0.09	1.70	22.78	73.51	0.08	0.94
Total	55.43	82.56	65.11	93.24	142.93	576.55	55.43	236.85

Table 8-15 – OCTA Infrastructure in Miles with Landslide Susceptibility Class 3 to 10

Infrastructure Type	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10
Bus Route	0.62	63.08	0.30	91.73	18.11	25.14	0.62	208.30
Freeway	5.24	37.84	4.59	75.78	17.71	36.88	5.24	203.96
Metrolink Rail	0.01	2.82	0.01	6.72	0.72	1.59	0.01	13.07
Pacific Electric ROW	0	0	0	0.20	0	0	0	0.21
Streetcar Route	0	0	0	0.01	0	0	0	0.01
Total	5.87	103.74	4.9	174.44	36.54	63.61	5.87	425.55

8.5.2.1 Vulnerability

The definition of exposure and vulnerability in the GIS data includes buildings and critical infrastructure within even a moderate landslide hazard zone.

8.5.3 Environment

Specific environmental impact from mass earth movements within the OCTA planning area is challenging to predict. In general, earth movements can alter the surface topography, smother vegetation underwater

or ground materials, and carry new materials into an ecosystem. Mass earth movements that dump materials into rivers can block water flow, causing the flow to reroute or flood the area. Soil and exposed hazardous materials can accumulate downslope, potentially contaminating drinking water supplies (World Health Organization). OCTA's planning area is prone to the risks resulting from a mass earth movement, including flooding, altered waterways, and contaminated water.

8.6 Development Trends

The Orange County Resources and Development Management Department consistently monitors and assesses mass earth movement potential. The Orange County Resources and Development Management Department also evaluates the work consultants do on construction projects, including grading plans and soil reports, and corrective measures to mitigate geologic hazards (e.g., landslides and liquefaction) (Orange County).

The State, California Legislature Section 65302 of the Government Code requires general plans to include land-use elements that identify and protect the community from any unreasonable risks associated with slope instability that could lead to mass earth movements (California Legislative Information, 2018). Orange County Ordinance NO.15-006, Section 7-10-30 (a) Setback and Slopes address landslide hazards (Orange County, 2020). This regulation states development must have an acceptable way for water to flow across and away from the site. Any long-term water retention must meet Building Official approval to reduce risks from mass earth movements (Orange County, 2020).

8.7 Issues

Mass earth movement considerations in the OCTA planning area:

- As new data, technology, and science become available, update maps and mass earth movement hazard assessments
- Climate change could increase these trigger events, escalating the likelihood and extent of mass earth movements
- Potential cascading impacts, such as ruptured gas lines, and potential for secondary hazards, such as fires

8.8 Hazard Map

The hazard maps for deep-seated landslide susceptibility and post-fire soil erosion risks in the planning area start on the next page.









Figure 8-5 – OCTA Post-Fire Soil Erosion Hazard Map



9 Severe Weather Events

9.1 General Background

Severe weather occurs all over the US and can take multiple forms, such as thunderstorms, drought, heatwaves, tornadoes, flash floods, and winter storms (Ready.gov, 2020). These varying types of storms can occur at any time of day or night and throughout the year. Severe weather events can damage or destroy structures, infrastructure, and the environment and result in injuries or loss of life. Severe weather events may be categorized into two groups (World Meteorological Organization, 2004):

- General Severe Weather systems that form over broad geographic areas that can cross regional and jurisdictional boundaries
- Localized Severe Weather storms in a limited geographic area

It is essential to note the distinction between extreme weather and severe weather. The most intense and rare weather events at a particular place and/or time are considered extreme weather; in contrast, common forms of storms that cause significantly more damage than usual are severe weather events (National Academy of Sciences, 2008). For example, in an area that experiences annual windstorms, when one storm is more violent than normal, it is severe weather.

Severe weather can trigger flooding, flash floods, storm surges, and erosion; these flood-related hazards are in Section 7 of this plan. Severe weather identified as a hazard in this plan (National Weather Service, 2009):

- Thunderstorms a local storm with thunder and lightning, can cause tornadoes, heavy rain, flash floods, hail, and high winds
- Tornadoes a destructive rotating column of wind generated by a thunderstorm, shaped in a funnel that reaches the ground
- Droughts extended periods of deficient rainfall and snowpack leading to serious groundwater shortages impacting people, animals, and the environment

DEFINITIONS

Derecho – a widespread and long-lived windstorm associated with thunderstorms that can cause damage similar to a tornado.

Droughts – extended periods of extremely low rainfall and snowpack that lead to groundwater shortages impacting a large area of people, animals, and the environment.

Excessive/Extreme Heat – a combination of high temperatures and humidity, where the human body cannot maintain internal temperatures and can cause heat stroke.

General Severe Weather – systems that form over broad geographic areas that can cross regional and jurisdictional boundaries.

Localized Severe Weather – damaging storms in a limited geographic area, can include all types of severe weather.

Thunderstorm – a local storm with thunder and lightning, can cause tornadoes, heavy rain, flash floods, hail, and high winds.

Tornadoes – a destructive rotating column of wind generated by a thunderstorm, shaped in a funnel that reaches the ground.

Winter Storm – a cold event with significant precipitation in the form of snow, ice, freezing rain, sleet, etc. Higher elevations get more precipitation.

• **Excessive/Extreme Heat** – a combination of high temperatures and humidity, where the human body cannot maintain internal temperatures and can cause heat-stroke

9.1.1 Potential Damage from Weather Events

There are multiple forms of severe weather and a variety of potential damages. Thunderstorms can produce heavy rains, tornadoes, hail, lightning, and high winds. Heavy rains can lead to several secondary hazards, such as flooding, flash floods, mass earth movements, and coastal erosion; secondary hazards are in Section 9.3. Tornadoes are the most violent type of storm (National Weather Service), which can quickly destroy structures, infrastructure, the environment and result in injuries or the loss of life.

Hail is balls of ice that form inside thunderstorms (The National Severe Storms Laboratory). Hail size depends on how long the ice stays in the thundercloud and continues to add layers. Eventually, the weight is too much for the storm to hold, and the hail drops to the ground. The largest hail size recorded had a circumference of 18.62 inches, and it weighed one pound, 15 ounces (The National Severe Storms Laboratory). Hail can significantly damage vehicles, break windows, and cause human injury or death.

If lightning hits a person, it can cause injury or loss of life. The high electrical current running through a body can damage the central nervous system, heart, lungs, and other vital organs (Krider). Lightning striking a building or power line can cause major electrical problems, including power outages, blown breaker boxes, blown transformers, and sometimes electrical fires (Krider). Under certain conditions, lightning-initiated fires can grow into wildfires.

Thunderstorms can bring high winds, sometimes called "straight-line" winds, to distinguish them from circular moving wind resulting in a tornado (The National Severe Storms Laboratory). High winds can reach up to 100 miles per hour and leave a destructive path that can extend hundreds of miles (The National Severe Storms Laboratory). These winds can directly damage structures and infrastructure and indirectly injure people struck by flying objects or cause loss of life.

Droughts are defined by their effects on people, animals, and the environment, which means the impacts determine when a weather event constitutes a drought (National Centers for Environmental Information). Droughts can have significant impacts on agricultural land and economies, animals, and human health. Droughts can also trigger several secondary hazards and cascading impacts; discussed in section 9.3

Excessive or extreme heat can affect every living thing, including humans, animals, and plants. Humans can experience heat-related illnesses such as heat stress, heat exhaustion, heatstroke, and in some cases, lead to loss of life (Centers for Disease Control, 2020). Extreme heat is a combination of temperatures above 90 degrees with high humidity over at least two days (Ready.gov, 2021). Warmer temperatures can reduce air quality and increase ozone levels (Centers for Disease Control, 2020). Excessive heat can lead to secondary hazards like wildfires and cascading impacts like rolling power blackouts, discussed in Section 9.3.

9.2 Orange County Transportation Authority Hazard Profile

The entire OCTA planning area is at risk from severe weather of varying types. In Appendix G Table G-5 lists the severe weather events that caused more than \$25,000 in damages or resulted in human injury or death in the planning area; they include tornadoes, heavy rain, lightning, thunderstorms, dust storms, heat, hail, and strong wind (National Oceanic and Atmospheric Administration). Storms coming off the Pacific Ocean are hazardous when combined with an El Niño wet season or a warm phase of the Pacific

Decadal Oscillation (California Coastal Commission). An El Niño occurs when the ocean and atmospheric system are disrupted, bringing heavy rains along the coast (County of Orange and Orange County Fire Authority, 2015). These conditions often last one to two years.

Figure 9-2 for the year 2035 and Figure 9-3 for the year 2070 show the predicted average temperature increases in three zones throughout the planning area.

By 2035, the zone increases are predicted to be (in °F):

- **Zone 1** degrees of warming 1.5-2
- Zone 2 degrees of warming 2-2.5
- Zone 3 degrees of warming 2.5-3

By 2070 the zones are expected to be (in °F):

- Zone 1 degrees of warming 2-2.5
- Zone 2 degrees of warming 2.5-3
- Zone 3 degrees of warming 3-3.5

Rising temperatures will mean more extended droughts and more extreme heat events. The planning area regularly experiences periods of drought. The last few were from 2006-2009, 2011-2014, and 2016-2017; although 2018-2019 brought more rain, parts of the planning area were still at a moderate drought level (UCLA

OCTA 2010 Severe Weather Narrative

December 2010, Orange County experiences severe weather resulting in several road closures, Metrolink train disruptions, and public evacuations. Multiple regular service routes were detoured due to flooding or accidents, with the City of Laguna Beach being significantly impacted requiring OCTA services to be dramatically detoured. Metrolink services were interrupted in the Laguna Nigel region, and OCTA provided vital bus bridges involving seven busses and 15 staff, resulting in the transportation of 122 citizens. Santiago Canyon experienced an evacuation due to debris flow and OCTA provided four busses and 13 staff to evacuate 49 citizens and two dogs.

Institute of the Environment & Sustainability, 2019). Drought-level explanations are in Section 9.2.5.

While average temperatures have gone up, so have record high temperatures in the planning area. During extreme drought events in the area, heatwave incidents also increased from four to six times per year, indicating a correlation between droughts and heatwaves (Hulley, Dousset, & Kahn, 2020). These severe weather events and factors demonstrate the hazard exposure to the entire planning area. Table 9-1 below illustrates the 2020 average weather conditions in the planning area.

Table 9-1 – Normal Temperatures in °F and Precipitation in Inches Recorded at the San Diego Miramar NAS Weather Station (National Centers for Environmental Information, 2020)

Season	Max Temperature	Minimum Temperature	Average Temperature	Precipitation
Annual	73.4	55.1	64.2	11.48
Winter	67.1	47.1	57.1	6.95
Spring	69.9	52.9	61.4	2.70
Summer	79.3	63.1	71.2	0.19
Autumn	77.1	57.2	67.2	1.64

9.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. Survey results were prioritized and ranked based on their averaged score. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. Compared to the other hazards in the survey, severe weather events were the fourth worst-case and most likely scenario.

Table 9-2 – OCTA Severe Weather, Storm Surge, Drought, and Extreme Heat Event	Hazard Ranking
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Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
		W	orst-Case Scena	rio		
3.05	3.09	3.50	2.57	3.02	3.05	4
Most Likely Scenario						
2.59	2.75	3.39	2.61	3.05	2.88	4

9.2.2 Past Events

Severe weather and flooding in 1997-1998 impacted Orange County, damaging facilities infrastructure, costing approximately \$50 million (County of Orange and Orange County Fire Authority, 2015). In Appendix G Table G-4 lists 15 severe weather events in the planning area that resulted in a FEMA disaster declaration between 1969 and 2020 (Federal Emergency Management Agency, 2020). Table G-5 summarizes the severe weather events in the planning area that resulted in deaths, injuries, and/or more than \$25,000 in damages. Since 1956, NOAA has recorded 133 of these weather events (National Oceanic and Atmospheric Administration). A few of the most notable events are in Table 9-3.

Table 9-3 – Significant Past Severe Weather Events in the Planning Area (Federal Emergency Management Agency,2020) (National Oceanic and Atmospheric Administration)

Date	Severe Weather Type	Deaths/Injuries	Property Damage	FEMA Declaration or Scale
2/10/2000	Heavy Rain	1 death 4 injuries	\$300,000	
3/6/2000	Hail	1 death	\$75,000	
11/12/2003	Hail	0	\$3,500,000	
1/7/2005	Heavy Rain	0	\$5,000,000	DR-1577-CA
1/7/2005	Heavy Rain	0	\$15,000,000	DR-1577-CA
2/18/2005	Heavy Rain	0	\$20,000,000	
4/14/2005	Severe storms, flooding, debris/mudflows			DR-1577-CA
3/13/2007	Severe freeze			DR-1689-CA
9/3/2007	Excessive Heat	8 deaths	\$0	
1/19/2010	Tornado	0	\$500,000	EF-1
3/8/2010	Severe winter storms, flooding, debris/mudflows			DR-1884-CA

Date	Severe Weather Type	Deaths/Injuries	Property Damage	FEMA Declaration or Scale
1/26/2011	Winter storms, flooding, debris/mudflows			DR-1952-CA
3/16/2017	Severe winter storms, flooding, mudslides			DR-4305-CA

9.2.3 Location

The entire OCTA planning area has experienced damage from severe weather, as shown by the emergency declarations and storm database tables in Appendix G. However, the most significant thunderstorms typically occur where the Pacific Ocean's cooler air meets warmer air from the San Gabriel Mountains or farther south of Mexico (Meier & Thompson). These thunderstorms can bring heavy rains, hail, high winds, and lightning to the Santa Anna Mountains and the valleys and plains below. However, the planning area coastline is most at risk from storms coming off the Pacific to bring storm surges and high waves.

Temperature predictions show an increase over the next few decades, overlapping the planning area in three zones. Figures 9-2 and 9-3 show the distribution of predicted temperature increases over OCTA's planning area. These increased temperatures expand the entire planning area's exposure to extreme heat and drought events. Additionally, as indicated in the past events section, severe drought conditions in Southern California have crossed the entire planning area (UCLA Institute of the Environment & Sustainability, 2019).

9.2.4 Frequency

On average, OCTA can expect impacts from severe weather at least once a year, as indicated by Tables G-4 and G-5. Severe weather can strike anywhere at any time of day or year; however, certain types of storms happen more often in particular seasons, such as extremely high temperatures and droughts in the summer. The NOAA database shows the types of severe weather events that can happen more often, such as heavy rains and thunderstorms, while hail is uncommon in the planning area.

Droughts are not uncommon in the OCTA planning area, and their frequency will increase in the future. planning area drought events are happening more often and lasting longer (UCLA Institute of the Environment & Sustainability, 2019). Higher temperatures and heat waves affect the frequency of droughts and extreme heat events. A report shared by the NASA Earth Observatory states that heatwaves have also increased in frequency, duration, and intensity over the last few decades throughout Southern California, including in the OCTA planning area (Hulley, Dousset, & Kahn, 2020).

9.2.5 Severity

The OCTA planning area can experience damage from all types of severe weather, including thunderstorms, tornados, droughts, and excessive heat. The severity level varies for each type of event. Table 9-4 describes the severe thunderstorm categories. Tornado ratings are in Table 9-5. In the drought severity section is a list of the five drought levels. The Heat-Index risk level is in Figure 9-1.

9.2.5.1 Severe Storms and Thunderstorms

Heavy rain and hail resulted in the loss of life and injuries in the planning area. Heavy rain, hail, and a tornado also caused significant property damage costs, shown in Table 9-3. Orange County experienced the highest damage cost at \$20 million after heavy rain in 2005. NWS has five severity categories:

Risk Severity	Label	Impacts
None	Thunderstorms (no official label)	Severe thunderstorm not expected, winds up to 40 mph, and small hail Lightning and floods can still occur
1	Marginal (MRGL)	Limited duration and/or intensity isolated severe thunderstorms possible Winds 40-60 mph Low tornado risk
2	Slight (SLGT)	Short term and/or not widespread, scattered severe thunderstorms and isolated intense storms possible Strong wind damage reports, one or two tornadoes Hail 1-inch diameter, and in isolated areas 2 inches
3	Enhanced (ENH)	Persistent and/or widespread, numerous severe thunderstorms possible Several strong wind damage reports with a few tornadoes Damaging hail 1-2-inch diameter
4	Moderate (MDT)	Longer widespread and intense thunderstorms likely Widespread wind damage and strong tornadoes possible Destructive hail of 2-inch diameter or more
5	High (HIGH)	Longer, very widespread, and especially intense thunderstorms expected Tornado outbreak Derecho

Table 9-4 – NWS Severe Thunderstorm Risk Categories (National Weather Service)

Table 9-5 – Enhanced Fujita Scale for Tornadoes (National Weather Service)

EF Rating	3 Second Gust (in mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

9.2.5.2Tornadoes

In the US, tornado intensity measurements are based on the Enhanced Fujita Scale (EF Scale). This scale defines a tornado's severity by the estimated wind speed and damages it causes, as shown in Table 9-5. Previous tornado events in the planning area fell within an EF-0 to EF-3 range (National Oceanic and Atmospheric Administration).

9.2.5.3Drought

Drought severity depends on several factors, including duration, intensity, geographic extent, and water supply needs in the planning

area. The measure of drought magnitude is in length of time and the water deficit severity. Environmental factors can amplify droughts, such as prolonged high winds and wildfires. The US National Integrated Drought Information System measures conditions in five levels related to the OCTA planning area.

Table 0.6 Drought Information System Magguraments	(National Integrated Drought Information System 2021	۱
rable 9-0 - Drought injornation system weasurements	(National integrated Drought injormation system, 2021)	/

Drought Level	Drought Description
D0 Abnormally Dry	 Dry soil, deliver irrigation early Active fire season begins
D1 Moderate Drought	 Dryland pasture growth student, supplemental feed for cattle Landscaping and gardens need irrigation earlier Stock ponds and creeks are lower than normal

Drought Level	Drought Description
D2 Severe Drought	 Fire season is longer with high burn intensity, dry fuels, and a larger coverage area More fire crews on staff
D3 Extreme Drought	- Federal water is not adequate for irrigation contracts, and extracting extra groundwater is expensive
D4 Exceptional Drought	 Many crop yields are low, affecting economies and households with possible food shortages Fire season is costly and extensive, with numerous fires and large areas burned Many recreational activities are affected

9.2.5.4 Extreme Heat

Extreme heat events in the planning area are already occurring and expected to become more common, more severe, and longer lasting as our climate changes (Environmental Defense Fund). The relationship between high temperatures and high humidity determines the extreme heat severity level. NOAA's table in Figure 9-1 illustrates the relationship between temperatures and relative humidity to provide the Heat-Index output level (National Oceanic and Atmospheric Administration). When the combined heat index reaches 90°F, many people are at serious risk.

Figure 9-1 – NOAA Heat Index (Leahy, 2019)

NWS Heat Index Temperature (°F)																	
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
(%	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
V(55	81	84	86	89	93	97	101	106	112	117	124	130	137			
idi	60	82	84	88	91	95	100	105	110	116	123	129	137				
E	65	82	85	89	93	98	103	108	114	121	128	136					
Ŧ	70	83	86	90	95	100	105	112	119	126	134						
ive	75	84	88	92	97	103	109	116	124	132							
lati	80	84	89	94	100	106	113	121	129								
Re	85	85	90	96	102	110	117	126	135							-	-
	90	86	91	98	105	113	122	131								ne	RR
	95	86	93	100	108	117	127										-)
	100	87	95	103	112	121	1.32										TE
E,	Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity																
	Caution Extreme Caution Danger Extreme Danger																

9.2.6 Warning Time

Meteorologists can often predict the likelihood of a severe storm, providing several days of advanced warning. For example, the NWS Climate Prediction Center issues long-range forecasts, with eight to 14 day, monthly, and seasonal outlooks (National Weather Service) (National Oceanic and Atmospheric Administration and National Weather Service, 2021). However, specific aspects of a storm can be challenging to determine, such as where lightning will strike or how large hail will be (The National Severe Storms Laboratory). Numerous scientific factors inform predictions. However, with so many factors to account for, forecasts are not always correct or exact.

9.2.6.1 Thunderstorm and Tornadoes

The NWS San Diego office assesses potential weather and flood event factors to determine when to send emergency notifications and what warning level to set. The office also provides up-to-the-minute watches, warnings, and advisories for four categories of severe weather, listed in the table below.

Convective/Tropical	Flooding	Winter Weather	Non-Precipitation
Tornado Watch	Flash Flood Watch	Winter Storm Watch	High Wind Warning
Tornado Warning	Flash Flood Warning	Winter Storm Warning	High Wind Advisory
Severe Thunderstorm Watch	Coastal/Flood Watch	Freezing Rain Advisory	
Severe Thunderstorm Warning	Coastal/Flood Warning	Ice Storm Warning	
Hurricane Watch	Small Stream Flood Advisory	Winter Weather Advisory	
Hurricane Warning			
Tropical Storm Watch			
Tropical Storm Warning			

Table 9-7 – NWS Warnings and Advisories List (National Weather Service, 2021)

9.2.6.2 Drought

The Drought Early Warning System (DEWS) uses climate and drought science to predict future drought conditions, making the data accessible and valuable for decision-makers (National Integrated Drought Information System, 2020). The DEWS goal is to provide as much forewarning as possible to improve stakeholders' capacity to monitor, forecast, plan for, and cope with drought impacts (National Integrated Drought Information System, 2020).

9.2.6.3 Extreme Heat

When temperatures spike in the summer months, there is a surge of energy use when residents return home from work and turn on appliances, air conditioners, and other cooling devices (California Independent System Operator). Orange County employs a "Flex Alert" (California Independent System Operator) when the grid is taxed or close to maxed out. The alert requests customers to reduce their energy usage during peak energy times and high temperatures.

9.3 Secondary Hazards and Cascading Impacts

9.3.1 Secondary Hazards

Severe weather can trigger several secondary hazards, such as flooding (Ready.gov, 2020), storm surge, and increase coastal erosion; flooding and erosion hazards are in Section 7 of this plan. Heavy rains can also destabilize slopes, resulting in mass earth movements (United States Geological Survey). Drier soil during a drought means less vegetation, increasing the risk of mass earth movements without the vegetation to stabilize slopes and surface erosion due to lose dry soil; Mass earth movements are in Section 8. Lightning strikes, droughts, and heatwaves increase wildfire risks (National Centers for Environmental Information); Section 11 discusses wildfires further.

9.3.2 Cascading Impacts

Cascading impacts from severe weather include damaged or destroyed infrastructure and utilities. Heavy rain, lightning, and tornadoes can knock out power, roads, communications and disrupt water

management systems. Damaged or flooded roads can disrupt OCTA's transportation services. High winds can topple trees, communication towers, and power lines. Downed power and broken gas lines can start fires. During heatwaves, people use more electricity when they are at home, especially running air cooling units, which can overwhelm the electrical grid and cause rolling brown or blackouts. Brownouts are when power is still transmitted but at a diminished capacity, while blackouts are a complete shutdown of affected power stations/substations (California Independent System Operator).

9.4 Potential Impacts from Future Climate Conditions

Severe weather will occur more often and be more intense as climate change worsens (Environmental Protection Agency), resulting in more frequent and severe extreme heat days and heatwaves, more droughts, and storms. As a result, the planning area could see more extremely wet winters and springs at the current global carbon emissions rate. These extreme events could increase as much as 50 percent by the 2070s, compared to the increase between 1850 to the present (Constible, 2019). Additionally, higher temperatures for more extended periods in OCTA's planning area mean more moisture evaporated into the atmosphere, amplifying rainfall, and creating a cycle of extreme weather (Environmental Defense Fund).

The planning area saw three years of continuous drought conditions from 2011-2014 (UCLA Institute of the Environment & Sustainability, 2019). Higher annual average temperatures contribute to drier conditions. The annual increase includes warmer weather in the winter with more precipitation in the mountains falling as rain instead of snow, resulting in less snowmelt in the summer to provide water in the drier summer months. Climate change factors have already increased temperatures and resulted in prolonged dry periods and severe drought conditions. These temperatures will continue to rise in the future, exacerbating already dry periods. Tables 78 to 83 list OCTA's structures, infrastructure, and land-use parcels with the predicted temperature increases due to climate change.

9.5 Exposure

9.5.1 Population

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for severe weather events shows population exposure to stormwater inundation and temperature increases. OCTA ridership exposed to stormwater inundation for a 100-year storm is in Table 9-8 below, with a total of 19,672 boardings in areas at risk from the inundation zone. Ridership exposed to predicted temperature increase in the planning area is in Tables 9-9 and 9-10. Ridership in areas predicted to increase by 1.5-2 degrees was over 4 million boardings in 2019 alone.

Table 9-8 – Summary of Ridership at Bus Stops Exposed to 100-year Stormwater Inundation Zone

Ridership at Bus Stops	Within 100-year Zone		
Total	19,672		

Table 9-9 – Bus Stop Ridership at Risk from Predicted Temperature Increases up to Year 2035

Ridership	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Total	4,149,156	14,930	31,278,952

Table 9-10 – Bus Stop Ridership at Risk from Predicted Temperature Increases up to Year 2070

Ridership	2-2.5 Degrees	2.5-3 Degrees	3-3.5 Degrees
Total	27,079,210	824,321	7,539,507

9.5.1.1 Vulnerability

Vulnerable populations are especially at risk and may require support to evacuate during a 100-year storm inundation event. Individuals with medical conditions or autoimmune deficiencies will be more affected by poor air quality or increased infectious diseases (United States Global Change Research Program, 2016). Although droughts may not directly impact individuals in the planning area, droughts can reduce food and water supplies, raising prices, and disproportionately affecting low-income households (Constible, 2019).

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for populations at risk from a 100-year stormwater inundation event are in Table 9-11. As the results show, there are nearly 30,000 households below the poverty level; this group is especially at risk as they may not have the funds to prepare their residences and/or may need assistance with transportation during an evacuation.

Populations	100-Year Storm Inundation Zone
Black	2,949
American Eskimo	1,166
Asian	21,846
Hawaiian/Pacific Islander	457
Hispanic	76,521
Multiple Races	8,027
Children up to 19 Years Old	52,663
65 Years and Older	20,706
Below the Poverty Level	29,054

Table 9-11 – Vulnerable Populations at Risk from 100-Year Stormwater Inundation

Extreme heat exposure is calculated by the length of time people spend in high temperatures (National Integrated Heat Health Information System, 2020). Groups vulnerable to extreme heat exposure include children, emergency responders, the elderly, outdoor workers, athletes, and individuals with existing medical conditions exacerbated by heat. For example, elderly persons that rely on OCTA services for transportation are at higher risk for heat-related illnesses while waiting outside for the transportation to arrive. Additionally, children often rely on adults to identify extreme heat events and take precautions like drinking plenty of water.

Outdoor workers on OCTA projects may have layers of protective clothing and/or need to carry heavy gear, which can escalate their susceptibility to heat illnesses. Additionally, the urban heat island effect can raise temperatures between 18 to 27 degrees during the day in densely populated areas with less vegetation and more asphalt (National Integrated Heat Health Information System, 2018). This heat island effect can impact the densely populated planning area (Orange County Transportation Authority, 2018).

The highest number of populations at risk in Table 9-12 are in the 2-2.5 temperature increase range by 2035. Over one million minority and mixed-race individuals are in areas predicted to warm 2-2.5 degrees by 2035. Table 9-13 shows warming up to the year 2070 and the populations that could be impacted, with nearly 1.3 million minority and mixed-race people at risk from 2.5-3 degree increase by 2070. Additionally, many low-income households are at risk from a 2.5-3 degree warming at 238,447 households.

Populations	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Black	20,707	32,515	784
American Eskimo	5,972	11,677	343
Asian	215,163	304,672	4,839
Hawaiian/Pacific Islander	3,475	5,916	126
Hispanic	305,062	692,038	17,502
Multiple Races	52,844	64,529	2,506
Children up to 19 Years Old	304,764	451,273	16,078
65 Years and Older	162,725	167,926	7,555
Below the Poverty Level	139,266	238,447	6,158

Table 9-12 – Vulnerable Populations Exposed to Predicted Temperature Increases up to the Year 2035

Table 9-13 – Vulnerable Populations Exposed to Predicted Temperature Increases up to the Year 2070

Populations	2-2.5 Degrees	2.5-3 Degrees	3-3.5 Degrees
Black	9,333	40,535	4,137
American Eskimo	3,041	13,396	1,555
Asian	137,848	359,480	27,347
Hawaiian/Pacific Islander	1,657	7,247	613
Hispanic	157,486	783,609	73,506
Multiple Races	29,675	79,554	10,650
Children up to 19 Years Old	170,529	535,549	66,307
65 Years and Older	83,233	220,904	34,070
Below the Poverty Level	85,995	272,800	25,076

9.5.2 Property

Table 9-14 shows OCTA's infrastructure vulnerable to a 100-year storm. Tables 9-15 to 9-17 are OCTA's buildings, land parcels, and infrastructure exposed to predicted temperature increases for the year 2035. Tables 9-18 to 9-20 show the areas affected with predicted temperature increases for 2070.

Table 9-14 – OCTA Infrastructure and Related Operations Exposed to Stormwater Inundation in a 100-Year Storm

Land Type	Miles
Bus Route	2.80
I-405 Freeway	0.230
Other Freeway	0.285

Land Type	Miles
Metrolink Rail	0.01
Total	3.325

Table 9-15 – OCTA Buildings Exposed to Predicted Temperature Increases to the Year 2035

Building Type	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Bus Stops	1242	4236	4
Fullerton Park-and-Ride	0	1	0
Brea Park-and-Ride	0	1	0
Streetcar Stop	0	13	0
Garden Grove Transit Base	0	5	0
Total	1,242	4,256	4

Table 9-16 – OCTA Environmental Areas Exposed to Predicted Temperature Increases to the Year 2035

Land Use Type	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Bobcat Ridge (proximal to the City of Lake Forest)	0	48.90	0
Eagle Ridge (proximal to the City of Brea)	0	0	296.90
Live Oak Creek (proximal to the City of Lake Forest)	0	82.54	0
Pacific Horizon (proximal to the City of Laguna Beach)	152.71	0	0
Silverado Chaparral (proximal to Silverado Canyon)	0	204.59	0
Trabuco Rose (proximal to Trabuco Canyon)	0	400.58	0
Wren's View (proximal to Trabuco Canyon)	0	116.96	0
Total	152.71	853.57	296.9

Table 9-17 – OCTA Infrastructure in Miles Exposed to Predicted Temperature Increases to the Year 2035

Infrastructure Type	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Bus Route	339.20	1009.59	1.06
I-405 Freeway	19.139	69.314	0
SR-91 Freeway	0	66.538	0
Other Freeway	159.095	375.994	2.206
Metrolink Rail	19.16	44.06	4.17
Pacific Electric ROW	0	11.79	0
Streetcar Route	0	5.05	0
Total	536.594	1582.336	7.436

Building Type	2-2.5 Degrees	2.5-3 Degrees	3-3.5 Degrees
Fullerton Park and Ride	0	0	1
Brea Park and Ride	0	0	1
Streetcar Stop	0	13	0
Garden Grove Transit Base	0	4	1
Total	0	7	3

Table 9-18 – OCTA Buildings Exposed to Predicted Temperature Increases to the Year 2070

Table 9-19 – OCTA Environmental Areas in Acres Exposed to Predicted Temperature Increases to the Year 2070

Land Use Type	2-2.5 Degrees	2.5-3 Degrees	3-3.5 Degrees
Bobcat Ridge (proximal to the City of Lake Forest)	0	48.90	0
Eagle Ridge (proximal to the City of Brea)	0	0	296.90
Live Oak Creek (proximal to the City of Lake Forest)	0	82.54	0
Pacific Horizon (proximal to the City of Laguna Beach)	152.71	0	0
Silverado Chaparral (proximal to Silverado Canyon)	0	33.24	171.35
Trabuco Rose (proximal to Trabuco Canyon)	0	400.58	0
Wren's View (proximal to Trabuco Canyon)	0	116.96	0
Total	152.71	682.22	468.25

Table 9-20 – OCTA Infrastructure in Miles Exposed to Predicted Temperature Increases to the Year 2070

Infrastructure Type	2-2.5 Degrees	2.5-3 Degrees	3-3.5 Degrees
Bus Route	83.36	1023.55	242.95
I-405 Freeway	33.07	501.24	157.97
SR-91 Freeway	0	88.452	0
Other Freeway	0	8.090	58.448
Metrolink Rail	4.30	34.88	28.20
Pacific Electric ROW	0	11.79	0
Streetcar Route	0	5.052	0
Total	120.73	2745.754	856.658

9.5.3 Critical Facilities

Critical facilities vulnerable to temperature increases are in Tables 9-21 and 9-22.

Table 9-21 – OCTA Critical Facilities Exposed to Predicted Temperature Increases to the Year 2035

Building Name	1.5-2 Degrees	2-2.5 Degrees	2.5-3 Degrees
Transportation Security Operations Center			1
Total	0	0	1

B. H. P. J. Black	2525		
Table 9-22 – OCTA Critical Facilities Exposed to Pred	licted Temperature Incre	eases to the Year 207	0

Building Name	2.5-3 Degrees	2-2.5 Degrees	3-3.5 Degrees
Transportation Security Operations Center			1
Total	1	0	1

9.5.4 Environment

Severe storm and drought events can radically affect the physical environment, altering surface geography and temporarily altering waterways. Some severe weather types can influence the environment significantly in a short time, such as highly destructive tornadoes. Other severe weather forms can have slower harmful impacts, like prolonged heavy rain and more frequent and intense heatwaves. Higher temperatures and prolonged droughts reduce air quality and can be detrimental to vegetation. Secondary hazards such as flooding, coastal erosion, mass earth movements, and wildfires can change the ground's surface, contaminate drinking water, change floodplains and waterways, and reduce vegetation. Cascading issues like downed powerlines can instigate wildfires, damaging the environment. These environmental impacts can impair or destroy OCTA's buildings, infrastructure, alter their land, and adversely affect customers and staff health.

9.6 Development Trends

All future development is at risk of severe weather hazards. Primary hazards from thunderstorms can have immediate effects on OCTA's development projects, such as destructive tornadoes, direct lightning strikes, and large hail; unfortunately, it is impossible to predict precisely when and where these risks will occur. OCTA can mitigate the impacts on development projects by receiving local weather alerts and warnings and following the recommended strategies.

OCTA regularly has new projects in development and updating or renovation projects to improve existing development. The planning area expects future population growth (United States Census Bureau, 2018). To manage growth and minimize the risk of these hazards, OCTA consistently develops and updates development plans with the best available data and science. These plans include:

- The 2014-2019 Strategic Plan
- 2018 Transit Vision Final Report
- 2018 Long-Range Transportation Plan
- 2019 Capital Programming Policies
- The OC Rail Climate Defense Plan, in progress

9.7 Issues

Issues associated with severe weather in the OCTA planning area:

- The older structures are especially vulnerable to severe weather events.
- Extended droughts and more frequent and intense heatwaves can extend project timelines with heat-illness prevention measures.
- Modern/current building codes, stormwater management, and electrical systems can minimize the risks associated with lightning, high winds, heavy rains, and hail.

9.8 Hazard Maps

The hazard maps for predicated temperature increases in the planning area start on the next page.









10 Tsunami

10.1 General Background

Tsunamis are sizable waves caused by earthquakes, volcanic eruptions, landslides under the sea that impact coastlines, or major landslides from the shore that drop significant amounts of debris into water bodies (National Oceanic and Atmospheric Administration, 2019). As waves travel inland, they build to higher heights as the ocean's depth decreases (National Oceanic and Atmospheric Administration, 2019). Figure 37 shows how a water body is affected by an earthquake along a fault, generating a tsunami that inundates the coastline.

Figure 10-1 – Earthquake Triggered Tsunami Process (United States Geological Survey, 2006)



DEFINITIONS

Runup – a measurement of the height of the water onshore observed above a reference sea level.

Tsunami – comes from the Japanese words for *harbor* ("tsu") and *wave* ("nami"); a long high sea wave caused by an earthquake, submarine landslide, or other disturbance.

Tsunami from a large undersea earthquake – the earthquake must cause significant vertical deformation on the seafloor for a tsunami to occur.

Tsunami Advisory – issued when strong currents and dangerous waves of one to three feet are expected.

Tsunami Warning – issued by PTWC when a potential tsunami with significant widespread inundation is imminent or expected.

Tsunami Watch – issued when an event may later impact the watch area; may be upgraded to tsunami warning.

Seiches – a standing wave/oscillation in an enclosed or partially enclosed body of water that varies in a period from a few minutes to several hours.

Tsunami-generated waves can reach heights of over 100 feet and travel at speeds over 500 miles per hour, the same speed as a commercial jet plane (National Oceanic and Atmospheric Administration and National Weather Service, 2018). If a tsunami is close to the coastline, populations may only have minutes to prepare (United States Geological Survey). Major tsunamis occur globally about once per decade; 59 percent of the world's tsunamis occur in the Pacific Ocean, 25 percent in the Mediterranean Sea, 12 percent in the Atlantic Ocean, and four percent in the Indian Ocean (National Oceanic and Atmospheric Administration and National Weather Service, 2020).

10.1.1 Potential Damage from Tsunamis

Areas most at risk are near the coastline and waterways connected to the ocean, such as beaches, bays, lagoons, harbors, river mouths, and areas along rivers and streams. The coastline is where the water surges the highest and with the most force. Tsunamis also increase currents near the coastal waterline, damaging boats in the area and pulling people in the water farther out to sea. Destruction can occur inland as tsunamis carry large amounts of water and debris into coastal waterways and land. As the water surge recedes to the shore, it can also drag debris and people into the water body.

NOAA explains, even six inches of rapidly flowing water can push an adult over, while 12 inches of fastmoving water can carry larger objects like cars, trees, and small boats (National Oceanic and Atmospheric Administration, 2018). The influx of quickly flowing water and everything the water carries can impact anything in its path, including ships, harbors, buildings, infrastructure, natural and cultural resources, and people. Although tsunami waves are known to cause damage, there are other hazards associated with tsunamis, such as land erosion and flooding. Flooding, SLR, and Erosion are in Section 7.

10.2 Orange County Transportation Authority Hazard Profile

The Orange County coastline is the most at risk of severe damage due to tsunamis; however, tsunamis can also push large amounts of water up waterways and flood areas around ocean-connected channels. Figure 10-3 shows land within the planning area that is exposed to a tsunami and associated flood zones.

After the 1864 magnitude 9.2 earthquake in Alaska, there were tidal surges in Huntington Harbor that reached four to five feet (County of Orange and Orange County Fire Authority, 2015). A more recent tsunami in 2010 produced three-foot waves in Orange County, causing officials to close almost every beach and pier in the County (County of Orange and Orange County Fire Authority, 2015). For the same tsunami, the City of Newport Beach sent out automated alerts warning residents to avoid the beaches, and parts of Dana Point Harbor were closed. These events show a precedent for tsunamis in the planning area and examples of how they can impact staff, customers, residents, and visitors.

Earthquakes are the primary cause of tsunamis, and there are

OCTA 2011 Tsunami Narrative

March 2011, a massive earthquake occurred off of Japan in the Pacific Ocean. This event devastated the Japanese coastline and sent a significant tsunami across the Pacific to the west coast of the US. OCTA activated its Emergency Operation Center and began pre-planning for the wave's arrival. Coastal bus routes were reviewed and detours implemented; Metrolink operations were consulted and placed on standby; and busses were readied to assist with evacuations if needed. At approximately 1300 on March 11th, all beaches were opened and OCTA operations returned to normal

hundreds of earthquake zones and active faults in and around the OCTA planning area. These fault zones and seismic hazards are detailed in Section 5 of this plan. Past earthquakes that reached a "great" magnitude class (M > 8) in other regions of the world resulted in tsunamis that struck OCTA's coastline.

10.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process and assessed hazard-related factors based on worst case and most likely scenarios. Hazard definitions and ranking factors are in Appendix G, Table G-1. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, with one as the lowest and five as the highest. Survey results were prioritized and ranked based on their average score. Compared to the other hazards in the survey, tsunamis were the sixth worst-case scenario and the seventh most likely scenario.

Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Worst-Case Scenario						
3.73	3.00	1.45	4.18	1.82	2.84	6
Most Likely Scenario						
2.18	2.18	1.09	3.45	2.00	2.18	7

Table 10-1 – OCTA Tsunami Hazard Ranking

10.2.2 Past Events

Table 10-2 lists seismic-triggered tsunami events that impacted the planning area between 1900 to 2019 and the damage these events caused.

Table 10-2 – History of Tsunami Events in OCTA's Planning Area (Uslu, Eble, Titov, & Bernard, 2010) (Los Angeles County Office of Emergency Management, 2019) (County of Orange and Orange County Fire Authority, 2015)

Date	Source	Magnitude	Damage/Effect
1922	Chile	8.3	Strong currents all along the coast of CA.
1946	Aleutian Islands	8.8	Broke ships from their moorings and had beach run-up heights from 1-6 feet in Catalina Island, Los Angeles, and Long Beach.
1952	Kamchatka	9.0	Beach run-up heights of 1-2 feet in Santa Monica, Los Angeles, and Long Beach.
1957	Aleutian Islands	8.3-8.6	San Diego had damage to ships and docks, run-up from 1-2 feet in Santa Monica, Los Angeles, and Long Beach.
1960	Chile	9.5	Beach run-ups were 2-5 feet in Catalina Island, Los Angeles, Long Beach, and Santa Monica. One death, 800 small marine craft unmoored, 200 boats damaged, and 40 boats sunk.
1964	Alaska	9.2	Beach run-ups were 2-3 feet in Catalina Island, Los Angeles, Long Beach, and Santa Monica. One death, 100 boats unmoored, and 7 boats sunk – approximately \$350 thousand in damages.
2010	Chile	8.8	Run-up heights of 1-3 feet in Catalina Island, Los Angeles, Long Beach, and Santa Monica. Minor damage to docks and boats. Orange County closed most beaches. Newport Beach recommended residents avoid the beach. Dana Point Harbor's bait barge was broken into two pieces.
2011	Japan	9.0	Beach run-up of 2-3 feet in Catalina Island, Los Angeles, Long Beach, Redondo Beach, and Santa Monica. Damage to docks and boats.

10.2.3 Location

There are two types of seismic tsunami triggers along the California coast, local sources, and distance sources (California Department of Conservation). Local sources of seismic activity are more likely to generate a tsunami affecting the California coast (California Department of Conservation). The 1964 Alaska earthquake is an example of a local seismic tsunami trigger that significantly impacted the California coastline. In contrast, seismic triggers with a high magnitude farther out in the Pacific generally

caused smaller tsunamis and less damage to the state (Uslu, Eble, Titov, & Bernard, 2010). The OCTA planning area most susceptible to damage from a tsunami hazard is on the coast, shown in Figure 10-3.

10.2.4 Frequency

As described in Section 10.1, tsunamis occur due to significant water displacement from events such as earthquakes, volcanic eruptions, and landslides; therefore, the frequency of tsunamis is relative to the frequency of events that cause them. OCTA has experienced tsunamis across the planning area. These events listed in Table 10-2 reveal the risks to the planning area; unfortunately, it is difficult to predict how often or exactly when the next tsunami will happen.

10.2.5 Severity

Tsunami severity depends on three factors: the trigger site's location relative to the impact area, magnitude or size of the triggering event, and depth of the trigger event. Most earthquake-generated tsunamis come from magnitudes 7.0 and greater in shallower water, less than 62 miles below the surface (National Oceanic and Atmospheric Administration). The earthquake must be large enough and close enough to the water surface to generate a significant wave or series of waves classified as a tsunami. A tsunami's height and impacts are influenced by local water depth, seafloor or ground topography, and the direction the tsunami comes from (National Weather Service). The damage from a tsunami can range from minimal to substantial, depending on the tsunami's severity. Even a six-foot tsunami can bring powerful currents that can knock a person over and carry them away (United States Geological Survey).

10.2.6 Warning Time

The time before a tsunami hits can vary from minutes to hours. However, not every event will produce a tsunami. To produce more accurate predictions, the NOAA tsunami warning centers use a vast network of sensors to determine which events will most likely result in a tsunami; when a tsunami is predicted, the centers then issue warnings to the appropriate locations (National Oceanic and Atmospheric Administration, 2018). There are four tsunami alert types defined by the NWS, listed in Figure 10-2. There are also natural signals before a tsunami arrives, such as (National Oceanic and Atmospheric Administration and National Weather Service, 2020):

- Severe ground shaking from local earthquakes
- Water receding from the coast and exposing the ocean floor, reefs, and fish, and abnormal ocean activity
- A wall of water creating a loud roaring sound like a train or jet aircraft



Figure 10-2 – NWS Tsunami Notification Levels (National Weather Service)

10.3 Secondary Hazards and Cascading Impacts

10.3.1 Secondary Hazards

After the initial wave hitting the coastline, tsunamis can generate several secondary hazards. The most common secondary hazard is flooding. High wave action and strong currents can significantly speed up natural erosion along the coast and connected waterways. Flooding, sea level rise, and erosion hazards to the planning area are addressed in Section 7. Water-saturated coastal cliffs can have mass earth movements. This hazard is described in Section 8. The extent of these risks depends on the severity of the tsunami and the amount of land inundated.

10.3.2 Cascading Impacts

Tsunamis can carry tons of debris, which endangers human life, and OCTA's property and infrastructure. Damage or destruction of transportation infrastructure can affect OCTA's services, economy, suppliers, businesses, and customers who rely on their services. The seriousness of the impact varies depending on the specific critical structures, infrastructure, and/or hazardous materials in the waves' path. Coastal structures such as breakwaters, piers, port facilities, and public utilities may get swept away by the water or collapse from the foundation, eroding after the water recedes. Ships moored in marinas or harbors may be destroyed or washed up onto the shore. Impacted vessels and coastal facilities can release hazardous materials into the environment. Harmful materials can be structure debris itself or anything hazardous the facilities and vessels contained. These materials could contaminate the floodwater and potentially drinking water.

10.4 Potential Impacts from Future Climate Conditions

Future climate conditions have no known effect on earthquakes that may cause tsunamis (Buis, 2019). However, as sea level rise increases, so do the tsunami hazard zone; the extent depends on the height of the sea level rise.

10.5 Exposure

10.5.1 Population

The 2015 Orange County HMP states the County's entire coastline could be impacted, and approximately 80,000 residents would have to be evacuated (County of Orange and Orange County Fire Authority, 2015). This number does not reflect population growth since 2015 or visitors to the area. Orange County alone had more than 50 million visitors in 2018 (De Nova, 2019). Visitors are more vulnerable since they do not know the tsunami hazards or evacuation routes or do not receive alert notifications.

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for tsunamis show population exposure and social vulnerability. Table 10-3 shows the OCTA bus ridership exposed to a tsunami, a quarter of a million boardings in 2019.

Table 10-3 – Bus Stop Ridership Exposed to the Tsunami Inundation Area

Ridership	Tsunami Exposure
Total	274,235

10.5.1.1 Vulnerability

The CDC defines three types of human health risks from a tsunami: immediate secondary, and long-lasting (Center for Disease Control, 2013). In the immediate aftermath of a tsunami, people can be trapped by debris or water. The secondary tsunami concern is food and potable water contamination and requires temporary shelter for displaced people.

Direct impacts to OCTA customers could mean adjusting transportation routes to support displaced residents. Secondary problems can include disease and illness spread from contaminated food and drinking water and dead remains of animals or humans before removing or inadequate sanitation in shelters and temporary living situations. Standing floodwater can also cause insect population growth, spreading disease, or consuming food supplies. Epidemic/Pandemic hazards are in Section 6.

Table 10-4 shows the populations at risk from tsunamis, with children, seniors, and those below the poverty level, especially at risk. They may need more assistance with transportation during evacuations.

Populations	Tsunami Exposure
Black	3,651
American Eskimo	1,413
Asian	29,826
Hawaiian/Pacific Islander	558
Hispanic	86,939
Multiple Races	10,269
Children up to 19 Years Old	65,208
65 Years and Older	31,284
Below the Poverty Level	34,328

Table 10-4 – Populations at Risk from Tsunamis

10.5.2 Property

A tsunami on the coastline is likely to significantly impact OCTA property in these inundation zones. The inundation line shows where the water will surge inland along smaller waterways.

Table 10-5 – OCTA Infrastructure Exposed to Tsunami Inundation Zones

Infrastructure Type	Miles
Bus Route	39.95
Other Freeway	0.12
Metrolink Rail	3.20
Total	43.27

10.5.2.1 Vulnerability

All structures and property located along tsunami inundation areas would be vulnerable, especially during events with little to no warning time.

10.5.3 Environment

A tsunami can change the surface of the land above and below the water. In some areas, the tsunami can push the ground farther up it, and in other areas, the water can erode the ground, lowering the surface. If the tsunami pushes water up waterways, it can expose new areas to flooding. Tsunami debris can clog waterways and leave a path of wreckage on the land when the water recedes. Depending on the severity of the tsunami, environmental changes can include permanent modifications to beaches and coastal features, and freshwater sources can be contaminated by saltwater or hazardous materials released by the tsunami. These environmental impacts can affect OCTA customers and the planning area with changes to the land, flood zones, debris damage, and public health issues.

10.6 Development Trends

In the Orange County General Plan, Chapter X Housing Element estimates future population numbers, characteristics, and housing needs. The plan's housing element was most recently updated in 2013, where expected growth from 2000-2012 was 7.4 percent (Orange County, 2013). As indicated in Figure 10-3, the OCTA planning area with the highest risk of tsunami damage is the coastline and coastal waterways.

The Orange County *Local Hazard Mitigation Plan* (LHMP) addresses tsunami risks in the planning area (County of Orange and Orange County Fire Authority, 2015). The LHMPs identify the hazard causes, probability, and potential damage. The Orange General Plan directs land use, addresses growth management, and establishes standards and plans to protect the community from hazards (Orange County). Development is safely regulated through building standards and performance measures to reduce risk. OCTA will continue to follow development codes, regulations, and laws to minimize or remove tsunami risks on renovations and new projects.

10.7 Issues

Issues associated with severe weather in the OCTA planning area:

- Tsunami science and technology are continually evolving. Therefore, hazard maps should be regularly reviewed and updated.
- Monitor tsunami warning systems and update as new versions or technologies are released.
- Continue to assess SLR's potential impacts on tsunamis as new data and models update predictions.

10.8 Hazard Map

The hazard map for tsunami risks in the planning area is on the next page.

Figure 10-3 – OCTA Tsunami Hazard Map



11 Wildfires

11.1 General Background

A wildfire, or wildland fire, is an unplanned fire that burns uncontrolled in forests, grasslands, brushlands, or croplands (Editors of Encyclopedia Britannica, 2020). The name refers to the fire's characteristics and region (Editors of Encyclopedia Britannica, 2020). There are two types of wildfires, ground, and surface. Ground fires burn underground into the vegetation's roots; this is most common when a thick layer of flammable organic matter

(National Geographic Triang Society, 2019). 2017) Surface fires burn vegetation above the soil. A wildfire fire's behavior depends on three key factors, weather, topography, and fuel, in Figure 11-1.





Wildfires can occur year-round due to natural and human-caused ignitions. The most common natural cause of wildfires is lightning, although volcanoes and meteors can also generate wildfires (United States Department of the Interior Indian Affairs). These natural hazards can ignite fires; however, nearly 85 percent of wildfires in the US are caused by human activity (e.g., campfires and arson) (National Park Service, 2018).

Massive wildfires are more common during droughts and warmer seasons due to drier vegetation and soil, lower groundwater levels, and less precipitation. High winds can exacerbate warm, dry conditions, and spread wildfires considerably further. The US Forest Service Southern Research Station administered a report that studied the conceptual model that shows the relationship between ignition types, prevention methods, and extent factors in Figure 11-2 (Prestemon, et al., 2013). This model demonstrates the complicated nature of wildfire causes, severity, spread, and organizations can assist management. lt in understanding all aspects of wildfire risks and develop effective mitigation strategies.

DEFINITIONS

Crown Fire – a type of fire that burnt through the top layer of trees, called the canopy. They are the most intense and difficult to contain.

Fuels – materials that burn in a fire, such as paper products, flammable gases or chemicals, or wood products. The material composition determines how flammable it is, based on moisture level, chemical makeup, and material density. The less moisture and lower density, the faster and hotter it burns.

Terrain/Topography – the ground's slope can help or halt the spread of a wildfire. Large gaps in vegetation or waterways such as rivers and creeks can stop a wildfire from spreading. Fires also move faster upslope than down due to elevation changes and warm air rising.

Wildland Urban Interface Area – an area susceptible to wildfires and where wildland vegetation and urban or suburban development occur together. An example would be smaller urban areas and dispersed rural housing in forested areas.

Wildfire – fires that result in uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. Because of their distance from firefighting resources, they can be difficult to contain and cause a great deal of destruction.



Figure 11-2 – Cohesive Strategy Wildfire Ignitions and Prevention Conceptual Model (Prestemon, et al., 2013)

11.1.1 Potential Damage from Wildfire

Wildfires pose a considerable risk to property, human life, and economies, as shown below (Western Forestry Leadership Coalition, 2010):

Buildings:	People:	Economies:
Insured and uninsured property loss	Loss of income	Lost revenues
Secondary hazards	Healthcare expenses	Infrastructure disruptions:
	Injuries or fatalities	Communications
	Evacuation displacement	Transportation
	Reduced air and water	Utilities
	quality	

Wildfires can scorch vast areas of land, timber, and wildlife habitats (United States Forest Service). Fires can reduce the quality of drinking water and the air (World Health Organization). Additional health effects can be injuries, smoke irritation, and exacerbated medical conditions. They can also lead to cascading impacts, such as local businesses closing, hurting the area's economy. Wildfires can be extremely costly for government agencies, public and private businesses, and individuals. US wildfire loss costs from 2010-2019 ranged between a couple of million dollars to \$24 billion, with the worst years in 2017 and 2018 by far (Insurance Information Institute, 2020). Hazardous materials can be released into the environment by damage to transportation and buildings that contain the materials. Secondary hazards and cascading impacts are in Section 11.3.

11.2 Orange County Transportation Authority Hazard Profile

Wildfires regularly occur within the planning area on an almost yearly basis. Tables 11-2 and 11-3 list some significant events that occurred in the past, which show how wildfires pose a substantial threat to life and property. Additionally, wildfires can damage or destroy infrastructure, utilities, and transportation services. Figure 11-4 displays those areas exposed to three different wildfire risk zones within the planning area, while Figure 11-5 indicates the Wildland Urban Interface Zones exposed to wildfire risks. The Orange County HMP identifies the WUI as the highest risk from wildfire damage (County of Orange and Orange County Fire Authority, 2015).

The following issues are substantial fire protection challenges in the urban area (County of Orange and Orange County Fire Authority, 2015):

- Multiple story high-density wood frame developments
- Large areas with developments close to each other that have combustible roofing materials
- Transportation of hazardous materials via air, rail, road, water, and pipeline
- Natural disasters that ignite wildfires and can make them more frequent and severe

The summer Santa Ana winds have a significant effect, spreading wildfires in the area. These high winds coming from inland and moving towards the coast spread fires farther, add oxygen to the fires, and the warm temperatures make ignition easier (County of Orange and Orange County Fire Authority, 2015).

11.2.1 Hazard Ranking

The Planning Team completed a hazard ranking survey during the OCTA 2022 HMP development process. The hazard factors are based on the worst-case and most likely scenarios. Definitions of the hazard ranking factors are in Appendix G, Table G-1. The survey results for each hazard were averaged to generate a score and rank, prioritizing the hazards. The variables of severity, magnitude, frequency, onset, and duration are scored one to five, where one is the lowest and five is the highest. When compared against the

OCTA Wildfire Narrative

2020 Bond Fire: Resulted in the evacuation of several WUI communities. This event moved near OCTA's Irvine Sand Canyon Bus Base, which housed paratransit operations. The base and its assets were evacuated for three days as a protective measure. Previous planning efforts meant operations were maintained during the relocation with no disruptions. The fire did not reach the base due to successful firefighting.

2017 Canyon 2 Fire: The fire started in Coal Canyon, spreading rapidly. It impacted several communities and the Operational Area (OA) EOC, triggering multiple city and counties to also activate EOCs. The OC Sheriff requested four cutaway busses to transport responders from Great Park to the OA EOC due to limited parking. Also, there were 40 OCTA busses on standby for evacuations. Bus routes in affected areas were rerouted.

2008 Lake Forest Value Inn Fire: OCTA was requested to transport 14 residents of the Americas Best Value Inn to a local reception site at El Toro High School.

2008 Freeway Complex Fire: OCTA was requested to be on stand by for evacuation support of communities. OCTA responded with 4 vehicles, 15 staff and logged 120.25 staff hours of involvement for the event.

2007 Santiago Fire: OCTA was asked to support emergency worker transportation and James A. Musick detention facility evacuation. Additionally, OCTA provided "bus bridge" services for Metrolink passengers, as rail lines were damaged and unusable. During this event, OCTA applied 695 hours and transported 1264 passengers. other hazards included in the hazard ranking survey, wildfires were the first worst-case scenario and the first most likely scenario.

Severity	Magnitude	Frequency	Onset	Duration	Average	Rank
Worst-Case Scenario						
3.82	4.18	4.55	4.18	2.91	3.93	1
Most Likely Scenario						
3.73	3.64	4.45	4.00	3.55	3.87	1

Table 11-1 – OCTA Wildfire Hazard Ranking Output

11.2.2 Past Events

In Section 11.1.1, there were several wildfires damage categories identified. OCTA and its customers may experience direct wildfire damage to structures and infrastructure or indirect results across the entire area, such as health risks. Some of the most significant fires that affected the planning area. These two counties experienced wildfires that made the top twenty list of largest, most destructive, and deadliest fires, shown in Table 11-2.

Table 11-2 – California's 20 Largest, Most Destructive, and Deadliest Wildfires in the Planning Area (CalFIRE, 2021)

Category	Date	Acres	Structures	Deaths
Deadliest	October 1933	47	0	29
Deadliest	October 1943	13,145	0	11
Deadliest	September 1955	1,150	0	6
Deadliest	November 1956	43,904	0	11
Deadliest	November 1966	2,028	0	12
Deadliest	August 1968	22,197	0	8
Largest	September 1970	175,425	382	5
Deadliest, Most Destructive, and Largest	10/2003	273,246	2,820	15
Deadliest, Most Destructive, and Largest	10/2007	197,990	1,650	2

A comprehensive list of wildfire events between 1969 and 2010 in the planning area, resulting in a disaster declaration is in Appendix G, Table G-4. Table 11-3 below shows the 12 wildfire events recorded by NOAA in both counties that resulted in deaths, injuries, and or over \$25,000 in damages.

Table 11-3 – Historic Severe Wildfire Events in the Planning Area (National Oceanic and Atmospheric Administration)

Date of Event	Deaths/Injuries	Property Damage Value Above \$25,000
10/21/1996	16 injuries	\$1,500,000
10/21/1996	0	\$3,000,000
8/2/2000	0	\$100,000
9/11/2000	2 injuries	-
1/23/2002	1 injury	-
Date of Event	Deaths/Injuries	Property Damage Value Above \$25,000
---------------	-----------------	--------------------------------------
2/9/2002	0	\$1,200,000
5/13/2002	0	\$250,000
9/1/2002	14 injuries	\$12,700,000
1/23/2002	1 injury	-
9/22/2002	14 injuries	\$15,300,000
11/20/2002	2 injuries	-
2/6/2006	8 injuries	-

11.2.3 Location

Figure 11-4 shows fire hazard severity zones from moderate to very high within the planning area. Figure 11-5 displays the WIU in the OCTA planning area. Cal FIRE also maps California areas with significant fire hazards by weighting fuels, terrain, and weather factors (California State Geoportal, 2020). These areas are divided into three Fire Hazard Safety Zones – moderate, high, and very high (California State Geoportal, 2020). In the planning area, WUI areas are often classed as a Very High Fire Hazard Severity Zone, as there are additional risks to people and structures (Orange County, 2017) (California State Geoportal, 2020). The WUI mixed developed land and wildland makes it problematic to predict precisely where and how the fire will spread (Department of Homeland Security Science and Technology, United States Fire Administration, and Federal Emergency Management Agency, 2019).

There are 23 Nationally Recognized Communities at Risk and five communities the Orange County Fire Authority (OCFA) identified as also at risk, in Table 11-4 below.

Nationally Recognized Communities at Risk				
Aliso Viejo	Anaheim	Brea	Costa de Caza	Trabuco Canyon
Cowan Heights	Dana Point	Fullerton	Irvine	Trabuco Highlands
Laguna Beach	Laguna Hills	Laguna Niguel	Laguna Woods	Villa Park
Mission Viejo	Modjeska	Newport Beach	City of Orange	Yorba Linda
Rancho Santa Margarita	San Clemente	San Juan Capistrano	Silverado	
Additional Orange County Fire Authority Recognized Communities at Risk				
Emerald Bay	Lake Forest	Lemon Heights/North Tustin	Santiago Canyon	Tustin Heights

Table 11-4 – Orange County Communities at Risk from Wildfires (Orange County, 2017)

11.2.4 Frequency

Since 1978, Orange County has experienced over 20 wildfires that exceeded 2,000 acres (County of Orange and Orange County Fire Authority, 2015). Approximately one FEMA declared wildfire disaster occurs in and around OCTA's planning area per year (Federal Emergency Management Agency, 2020). Contrary to historical events, current data shows wildfires can happen any time of year, especially in an unusually warm and dry winter. Climate change effects on snowpack levels in the mountain ranges to the east, precipitation patterns across the State, and high winds coming down from the mountains will contribute to more frequent and severe fires. Based on the risk factors presented and past occurrences,

it is likely that wildland fires will continue to significantly affect the OCTA planning area, caused by natural events and humans.

11.2.5 Severity

In OCTA's planning area, wildfires have caused injuries and death, destroyed, and damaged or destroyed structures and infrastructure. The past events in Tables 11-2 and 11-3 detail some significant wildfire events in the planning area. However, the largest fires are not always the most destructive fires. There are no injuries or deaths in some instances, but the value of property damage is in the millions of dollars; in other events, the cost is below the \$25,000 threshold but injured several people. The severity and extent of a wildfire are influenced by the following factors (National Park Service, 2017):

- Fuel Materials that burn in a fire, such as paper products, flammable gases or chemicals, or wood products. The material composition determines how flammable it is, based on moisture level, chemical makeup, and material density. The less moisture and lower density, the faster and hotter it burns. Additionally, some plants have oils or resin that burn more easily, quickly, and/or intensely.
- Weather Fires spread faster in hot, dry, windy weather. Less humidity and precipitation with warmer temperatures make fires easier to ignite. Strong wind adds lots of oxygen to the fire and carries embers, spreading the fires farther. Any combination of these factors makes wildfires more extensive and more severe.
- Terrain/Topography The ground's slope can help or halt the spread of a wildfire. Significant gaps in vegetation or waterways such as rivers and creeks can stop a wildfire from spreading by removing the fuel to feed the fire or making the vegetation too wet to burn. Fires move faster upslope than down due to elevation changes and warm air rising.
- Populated Areas The largest fires are not always the most destructive. While only a portion of the 30,202-acre Freeway Complex Fire in 2008 burned into the incorporated cities, it was in the cities where most of the structural damage occurred. In moderate and densely populated areas, the effects can be more severe for human injuries, loss of life, and/or property damage values.

11.2.6 Warning Time

Since humans cause most wildfires, there is no way to predict every ignition (National Park Service, 2018). However, weather factors that can lead to fire ignition or increase the spread and severity are more predictable, allowing for one to several days of warning time for current wildfire risks (United States Department of the Interior Indian Affairs). Additionally, organizations such as NOAA and the NWS use climate models to predict the next year's wildfire risk level. Past wildfire and weather data are fed into the models along with current conditions, like droughts. Unfortunately, climate change factors alter these models in unpredictable ways, making the annual prediction results less accurate in recent years (Mulkern, 2020).

To estimate wildfire risks for the next 12 to 72 hours, the NWS monitors weather conditions and issue notifications



Figure 11-3 – NWS Wildfire Notification

from local NWS offices (CalFire). The NWS San Diego Office covers OCTA's planning area. This office will send out three wildfire notifications depending on the risk level; these levels are described in Figure 11-3. Extreme fire behavior is the most dangerous alert and only happens when one or more of the following conditions exist – spreading fast, significant crowning and/or spotting, there are fire whirls, or there is a strong convection column.

The OCTA planning area can also be at risk from wildfire smoke. The Interagency Wildland Fire Air Quality Response Program, led by the USFS, provides air quality information and maps (United States Forest Service). The program and its prediction models rely on subject matter experts (Air Resource Advisors), air quality monitoring equipment, smoke concentration and dispersion modeling, and coordination with agency partners (United States Forest Service). Predictions and warnings are provided to the public through the EPA's AirNow website.

11.3 Secondary Hazards and Cascading Impacts

11.3.1 Secondary Hazards

Wildland fires can contribute to several secondary hazards such as flooding, mass earth movements, and coastal erosion. Most wildland fires burn hot and long baking soils, especially those high in clay content, increasing the impervious ground area. Impenetrable ground means less water absorbed into the soil, increasing rain and stormwater runoff and raising flood risks (CalFire, 2020).

Vegetation removed by fires increases the risk of flooding frequency and severity. Flooding hazards in the planning area are discussed in Section 7. Less vegetation along slopes also exposes the ground to more water runoff, which increases the potential for mass earth movements and coastal slope erosion. Erosion is addressed more in Section 7. Mass earth movements can even occur several years after a fire before the vegetation has had a chance to extend roots deep into the soil and stabilize the slope. Mass earth movements are covered in Section 8.

11.3.2 Cascading Impacts

Wildland fires can cause cascading impacts such as hazardous materials releases, utility disruptions, higher taxes and utility/infrastructure fees to recoup losses, loss of structures and infrastructure, and water contamination. Hazardous materials can be released when fires spread to buildings, storage areas, or vehicles containing these materials. Depending on the material's reaction to fire, they can be explosive, flammable, release toxic gas or fumes, or contaminate the environment. Wildfires can impair or demolish utilities resulting in cascading impacts such as power outages, broken water lines, natural gas line leaks, structure fires, or communication issues (Sathaye, Dale, Larsen, & Gary, 2011). Ravaged infrastructure can include road and rail transportation systems, earthen dams and levees, water and wastewater systems (Department of Homeland Security, 2016). Damage to public utilities, structures, and infrastructure can raise rates and taxes (California Legislature's Nonpartisan Fiscal and Policy Advisor, 2019).

11.4 Potential Impacts from Future Climate Conditions

Climate change has already made the planning area more prone to wildfires (National Geographic Society, 2019). Historically, fire seasons in the planning area were from May and September, with the highest number of events between June to October (Kelly). However, wildfire trends have changed over the past 15 years as climate change variables have altered wildfire behavior (Orange County, 2017). Some predictions indicated that the area burned by wildfires could increase by 77 percent by 2100 (Bedsworth,

Cayan, & Franco, 2018) and that wildfire-related insurance costs will rise by an estimated 18 percent price rise by 2055 (Bedsworth, Cayan, & Franco, 2018).

More extreme heat days, higher average annual temperatures, and extended periods of drought will lead to more dry vegetation to fuel fires; weather hazards are discussed in Section 9. Climate change factors such as less rainfall and snowpack can also lower reservoirs and water tables, making it harder to fight wildfires (County of Orange and Orange County Fire Authority, 2015).

11.5 Exposure

11.5.1 Population

Intersecting OCTA bus stop ridership and US Census planning area data with geospatial hazard data for wildfire hazard zones and the WUI shows population exposure and social vulnerability. Specific sections of the planning area will also have a higher risk of secondary hazards such as increased flooding or mass earth movements, shown in the maps in Section 7 for floods and 8 for mass earth movements. Additionally, the entire planning area can be susceptible to cascading impacts of wildfires, such as poor air quality (World Health Organization).

Table 11-5 below shows the 2019 OCTA ridership exposed to wildfire hazards and boardings in the WUI area. There was significant ridership in the WUI through the year, at over a half-million boardings.

Table 11-5 – Bus Stop Ridership Exposed to Wildfires and in the Wildland Urban Interface

Ridership	Wildfire Exposure	WUI
Total	120,016	525,277

11.5.1.1 Vulnerability

Smoke and air pollution from fires can be a health hazard, especially for children, the elderly, and those with respiratory and cardiovascular diseases. Other symptoms can include:

Table 11-6 – Vulnerable Population Health Risks from Wildfires (World Health Organization)

Irritation	Worsen Cardiovascular Diseases	Lung Conditions	Lung Diseases
Eyes	Heart Failure	Coughing	Pulmonary inflammation
Nose		Wheezing	Bronchitis
Lungs		Sore Throat	Exacerbated Asthma

Vulnerable populations at risk from wildfire hazards are in Table 11-7. The majority of the population falls in the very high-risk zone; nearly 800 thousand minority and mixed-race individuals are in this zone. Additionally, 187,237 households in the very high exposure area are low-income, making them especially vulnerable to fire risks. They may not have the funds for insurance or structural protection methods.

Table 11-7	- Populations	Exposed to	Wildfire I	Risks Moderate,	High, and	Very High
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Populations	Moderate	High	Very High
Black	37	1,172	18,395
American Eskimo	11	474	8,135
Asian	149	12,858	232,129

Populations	Moderate	High	Very High
Hawaiian/Pacific Islander	4	233	4,212
Hispanic	365	22,795	483,002
Multiple Races	79	2,672	50,986
Children up to 19 Years Old	571	16,227	339,748
65 Years and Older	260	6,177	141,475
Below the Poverty Level	167	7,382	187,237

The interface is where settled areas run up against wildland vegetation, while the intermix is where the settled land is directly mixed with the vegetation (Radeloff, et al., 2018). Table 11-8 shows the highest population numbers are in the interface.

Table 11-8 – Populations in the Wildland Urban Interface

Populations	Influence Zone	Interface	Intermix
Black	15,102	17,427	4,775
American Eskimo	5,165	5,630	1,824
Asian	153,705	179,101	46,592
Hawaiian/Pacific Islander	2,758	3,200	981
Hispanic	296,164	315,396	117,854
Multiple Races	35,238	36,434	10,862
Children up to 19 Years Old	231,115	234,202	74,724
65 Years and Older	105,969	94,930	27,789
Below the Poverty Level	113,504	116,934	42,675

11.5.2 Property

11.5.2.1 Exposure and Vulnerability

Intersecting OCTA facilities with geospatial hazard data for wildfire hazard zones and the WUI indicates exposure to this hazard. Property damage from wildland fires can be severe and significantly alter entire communities and transportation infrastructure. Tables 11-9 to 11-14 display OCTA's buildings, land use, and infrastructure exposed to wildfire hazard zones, their risk level, and those in the WUI zone.

Table 11-9 – OCTA Buildings Exposed to a Very High Risk of Least Moderate Wildland Fire Hazards

Building Type	Number of Buildings Exposed
Transit Center	1
Total	1

Table 11-10 – OCTA Environmental Areas Exposed to at Least Moderate Wildland Fire Hazards

Land Use Type	Acres
Bobcat Ridge (proximal to the City of Lake Forest)	48.90
Eagle Ridge (proximal to the City of Brea)	296.90

Land Use Type	Acres
Live Oak Creek (proximal to the City of Lake Forest)	82.54
Pacific Horizon (proximal to the City of Laguna Beach)	152.63
Silverado Chaparral (proximal to Silverado Canyon)	204.59
Trabuco Rose (proximal to Trabuco Canyon)	400.58
Wren's View (proximal to Trabuco Canyon)	116.96
Total	1303.1

Table 11-11 – OCTA Infrastructure and Related Operations Exposed to a Risk of Wildland Fire Hazards

Infrastructure Type	Moderate	High	Very High
Bus Route	0	0.05	24.42
SR-91 Freeway	0	0	9.461
Other Freeway	4.736	0.020	92.941
Metrolink Rail	0	0.21	3.90
Total	4.736	0.28	130.722

Table 11-12 – OCTA Buildings in the WUI Fire Hazard Zone

Building Type	In the Influence Zone	In the Interface Zone	In the Intermix Zone
Brea Park and Ride	0	1	0
Transit Center	0	1	0
Total	0	2	0

Table 11-13 – OCTA Environmental Areas in the WUI Fire Hazard Zone

Land Use Type	Influence Zone	Interface Zone	Intermix Zone
Bobcat Ridge (proximal to the City of Lake Forest)	48.77	0	0.13
Eagle Ridge (proximal to the City of Brea)	295.84	1.02	0
Live Oak Creek (proximal to the city of Lake Forest)	82.41	0	0.13
Pacific Horizon (proximal to the City of Laguna Beach)	152.27	0	0
Silverado Chaparral (proximal to Silverado Canyon)	204.23	0	0
Trabuco Rose (proximal to Trabuco Canyon)	398.59	0.45	0
Wren's View (proximal to Trabuco Canyon)	115.68	0	0.52
Total	1297.79	1.47	0.78

Table 11-14 – OCTA Infrastructure in Miles and Related Operations in the WUI Fire Hazard Zone

Infrastructure Type	In the Influence Zone	In the Interface Zone	In the Intermix Zone
Bus Route	9.39	103.62	1.98
I-405 Freeway	1.653	9.266	
SR-91 Freeway	0.490	2.114	2.124

Infrastructure Type	In the Influence Zone	In the Interface Zone	In the Intermix Zone
Other Freeway	27.139	67.748	8.588
Metrolink Rail	3.55	5.20	0.07
Total	42.222	187.948	10.782

11.5.3 Environment

Wildfires are a natural process in forest ecosystems; however, massive events can have adverse environmental impacts that may affect the OCTA planning area. Wildlife habitats can be destroyed, and occasionally wild animals might migrate outside of their normal environment and into more urban areas (Kenney, 2019). When fires burn, they release carbon dioxide into the atmosphere, and this greenhouse gas is hazardous to humans and animals that inhale it (United States Forest Service). A massive wildfire release of carbon dioxide can affect the weather and climate (World Health Organization).

11.6 Development Trends

OCTA's planning area is one of California's most rapidly growing regions; this area continues to experience residential, employment, and economic growth, including increasing growth into the WUI (County of Orange and Orange County Fire Authority, 2015). Every year the growing county and city boundaries expand into the hills, mountains, and forest lands. The growing interaction between urban/suburban areas and natural growth areas results in a significant wildfire risk for life and property.

The Orange County LHMP addresses wildfire risks in the planning area (County of Orange and Orange County Fire Authority, 2015). The LHMP identifies the hazard causes, probability, and potential damage. Additionally, the Orange County General Plan directs land use, addresses growth management, and establishes standards and plans to protect the community from hazards (Orange County).

Fire prevention methods are utilized to reduce the level of risk to structures to prevent the spread of wildfire embers and radiant heat (County of Orange and Orange County Fire Authority, 2015). Additionally, OCFA reviews all land use proposals and site development permits to ensure proper design and build. OCTA will continue to follow State and County regulations and permit requirements in all new developments in the planning area.

11.7 Issues

Issues associated with severe weather in the OCTA planning area (Orange County) (Orange County, 2017):

- Continue to properly manage hazardous materials in transportation and/or facility sites.
- Consider response times for emergency equipment and first responder personnel, especially during a hazardous material release incident.
- Emergency response services require the use of transportation infrastructure that could override OCTA's transportation services.

11.8 Hazard Map

The hazard maps of wildfire hazard severity zones and WUI in the planning area start on the next page.









OCTA 2022 Hazard Mitigation Plan

Part 3: Mitigation Strategy



12 Mitigation Strategy

12.1 Orange County Transportation Authority 2022 Hazard Mitigation Goals

Below are the four goals developed and adopted by the OCTA 2022 Steering Committee. Achievement of these goals defines the effectiveness of a mitigation strategy. The goals are used to help establish mitigation strategy priorities.

1. Support OCTA policies, plans, people, and programs to maintain a community transportation system that reduces risk and is resilient now and long term.

44 CFR Section 201.6(c)(3)(i)

States that hazard mitigation plans (HMPs) shall describe mitigation goals to reduce or avoid long-term vulnerabilities to identified hazards.

- 2. Minimize vulnerabilities to protect people, property, the natural environment, and keep Orange County moving.
- 3. Ensure resilience-oriented decisions are made through regional collaboration and enhanced partnerships.
- 4. Promote community engagement through transparent public outreach that is equitable and accessible to everyone in the community.

12.1.1 Strategies

The following table includes hazard mitigation strategies for OCTA as informed by the risk and capability assessments, including recommendations for prioritization for implementation and funding mechanisms. Through collaboration, these projects will positively benefit OCTA, the public, and the environment in Orange County. Those hazards consolidated into Severe Weather and Flooding do not have their own mitigation strategies as they did not score in the top one-third of the survey results and are therefore not high-priority hazards on their own; see Appendix D and G for unconsolidated Hazard Ranking Survey Results.

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Table 12-1 – OCTA Mitigation Strategies

Part 3 – Mitigation Strategy

₽	Description	Status (New, Existing, Complete)	Goals Supported	Hazards Addressed	Lead Entity	Support Entity	Implementation Timeline + Anticipated Cost + Funding Source	STAPLEE + Mitigation Score	Priority: High, Med, Low
1	Increase public education and outreach by creating a new dedicated hazard webpage to share climate information changed and OCTA mitigation/preparedness measures.	New	1, 4	All Hazards	ΟርΤΑ	-	 Less than 1 year <\$50,000 Yes: existing budget 	23 7	Low
2	Contribute to internal and regional after-action reports for the COVID-19 pandemic to identify critical strategies that need to be completed to reduce risks to the community from future pandemics. These recommendations should be included in future updates of the HMP.	New	1, 2, 3	Pandemic	ΟርΤΑ	County and local governments	- < 1 year - < \$50,000 - Yes: existing budget	34 10	High
3	Partner with other agencies to implement additional measures to protect coast rail infrastructure as appropriate in southern Orange County. See OC Rail Defense Against Climate Change for specific examples.	New	1, 2, 3	Flood, SLR, and Erosion	OC Parks, OC Public Works, OCTA	OCTA, Metrolink, Amtrak, LOSSAN	- 3-5 years (ongoing) -< \$100,000,000 - Unknown: grants, existing budget	34 8	High
4	Partner with other agencies to study potential erosion control and stormwater measures.	New	1, 2	Flood, SLR, and Erosion	OC Public Works	OCTA, Metrolink, and Amtrak, LOSSAN, USACE, local jurisdictions	- 1 – 3 years < \$100,000,000 Unknown: grants, existing budget	41 8	High
5	Regularly obtain the most recent recommended future heavy precipitation and flow estimates and compare these to the current 100-year high confidence heavy precipitation and flow estimates used for infrastructure design. Determine which estimates should be used to minimize risks to infrastructure over the lifecycle. (Aligns with OC Rail Defense Against Climate Change Plan)	New	1, 2	Flood, SLR, and Erosion	ΟርΤΑ	OC Public Works	- < 1 year (ongoing) - <\$50,000 - Yes: existing budget	32 6	Med

DR	AFT			Part 3 – Mitigation	Strategy				
	Description	Status (New, Existing, Complete)	Goals Supported	Hazards Addressed	Lead Entity	Support Entity	Implementation Timeline + Anticipated Cost + Funding Source	STAPLEE + Mitigation Score	Priority: High, Med, Low
6	Regularly review and update the data used to calculate the rail zero-stress temperature to account for current and projected climate change and stress newly installed and existing rail based on this information. (Aligns with OC Rail Defense Against Climate Change Plan)	New	1, 2	Severe Weather	ΟርΤΑ	Metrolink	- <1 year (ongoing) - <\$50,000 - Yes: existing budget	36 7	Med
7	Evaluate and develop recommendations to retrofit OCTA critical facilities to address seismic risks.	New	2	Earthquake	ΟርΤΑ		 - 3-5 years -< \$100,000,000 - Unknown: grants, existing budget 	28 7	Med
8	Assess and implement engineering options at OCTA bus bases for hardening fuel storage and fueling facilities against seismic and other hazards.	New	2	Earthquake, Flood/SLR/ Erosion, Wildfires, Tsunami	ΟርΤΑ	-	 - 3-5 years - < \$100,000,000 - Unknown: grant, existing budget 	34 7	Med
9	Develop site-specific response plans and structures for worksites using Standardized Emergency Management / National Incident Management principles.	New	1	All Hazards	ΟርΤΑ	State, county, local government	 Less than 1 year < \$10,000 Yes: existing budget 	35 10	High
1	0 Continue OCTA vulnerability assessments for all hazards.	New	1, 2	All Hazards	ΟርΤΑ	-	 < 1 year (ongoing) \$3.5 billion (2021 dollars) Anticipated: grant 	39 8	High
1	 Share vulnerability assessment data with partner Agencies. Encourage train station amenities to help riders during extreme heat and other severe weather events, including additional shaded or covered areas and seating, restrooms, and cooling mechanisms. Provide accurate information on train schedules to minimize waiting times. (Aligns with OC Rail Defense Against Climate Change Plan) 	New	1, 2, 4	Severe Weather	Cities, Metrolink Amtrak, LOSSAN Agency	ΟርΤΑ	 Less than 1 year < \$100,000,000 (estimated \$5,555,000) - Unknown: grants, existing budget 	31 8	High
1	Expand internal communications and preparednesseducation about potential hazards, including what to do during and after a hazard event.	New	1, 2	All Hazards	ΟርΤΑ	-	 Less than 1 year < \$50,000 Anticipated: existing budget 	37 10	High

DRAF	Т			Part 3 – Mitigation S	Strategy				
٩	Description	Status (New, Existing, Complete)	Goals Supported	Hazards Addressed	Lead Entity	Support Entity	Implementation Timeline + Anticipated Cost + Funding Source	STAPLEE + Mitigation Score	Priority: High, Med, Low
13	Perform fuel modifications on OCTA conservation properties to provide proper clearance near habitable structures per local fire authority standards. Assess opportunities to replace invasive species and plant fire- adapted native plants to prevent invasive species from becoming re-established, minimizing the risk of wildfires.	New	2	Wildfires	ΟርΤΑ	County and local governments	 1-3 years < \$500,000 Unknown: grants, existing budget 	43 9	High
14	Evaluate stormwater runoff systems at critical OCTA facilities and infrastructure. As appropriate, upgrade stormwater runoff management at OCTA critical facilities and infrastructure.	New and Existing	2	Flood/SLR/Erosion, Severe Weather	ΟርΤΑ	Orange County Public Works, local governments	- 3-5 years - < \$100,000,000 Unknown: grants, existing budget	39 7	High
15	Continue to use the most current GIS data layers in the hazard reduction decision-making processes.	Existing	1, 2	All Hazards	ΟርΤΑ	Federal and state governments	 < 1 year (ongoing) < \$50,000 Yes: existing budget 	41 8	High
16	Regularly assess the planning area's evacuation routes and pickup points. Coordinate with the County Emergency Management Division and cities to provide the most efficient and effective evacuation transportation support.	Existing	1, 3	Flood/SLR/Erosion, Mass Earth Movements, Severe Weather, Tsunamis, Wildfires	ΟርΤΑ	County and local governments (OCSD EMD, City Emergency Managers)	- < 1 year (ongoing) - < \$50,000 - Yes: existing budget	37 9	High
17	Support cities and the county in the planning area with evacuation education and public outreach related to OCTA.	New	1, 3, 4	Earthquake, Flood/SLR/Erosion, Mass Earth Movements, Tsunami, Wildfires	ΟርΤΑ	County governments	- <1 year - < \$50,000 - Yes: existing budget	39 8	High
18	Evaluate transit options for providing transit service during a disaster event. (Aligned with <i>OC Transit Vision</i>)	New	1, 3	Earthquake, Epidemic/ Pandemic, Flood/SLR/Erosion, Tsunami	ΟርΤΑ	OCTA Contracted Services	- 1-3 years -\$50,000 - Yes: existing budget	37 7	High

DRAF	T			Part 3 – Mitigation S	Strategy				
9	Description	Status (New, Existing, Complete)	Goals Supported	Hazards Addressed	Lead Entity	Support Entity	Implementation Timeline + Anticipated Cost + Funding Source	STAPLEE + Mitigation Score	Priority: High, Med, Low
19	Promote the use of new technology in hazard mitigation and emergency preparedness.	New	1, 2	All Hazards	ΟርΤΑ	OCTA IS Department	- < 1 year (ongoing) - < \$50,000 - Yes: existing budget	24 6	Med
20	Continue to develop new and evaluate existing climate change goals and policies as new scientific data and models become available.	Existing	1, 2, 3	Flood/SLR/Erosion, Mass Earth Movements, Severe Weather, Wildfires	ΟርΤΑ	Federal and state governments	- < 1 year (ongoing) - < \$50,000 - Yes: existing budget	31 6	Low
21	Incorporate data from the 2022 OCTA HMP, mitigation strategies, and risk reduction principles into future updates of agency plans related to hazard mitigation.	New	1, 2	All Hazards	OCTA	-	 < 1 year (ongoing) < \$50,000 Unknown: grants, existing budget 	33 7	Med
22	Develop and improve communication redundancies to ensure effective internal and external communication in a hazard event.	New and Existing	1, 2, 4	All Hazards	ΟርΤΑ	-	- 3-5 years - \$50,000 - Unknown: grants, existing budget	36 8	Low
23	Prepare and implement fire management plans, invasive species control, public education and awareness, and enhanced security measures to mitigate the potential for wildfire on conservation properties. Consider closure of conservation properties during times of high fire risk. (Aligned with resource management plans.)	New	1, 2, 4	Wildfires	ΟርΤΑ	OCFA, OCSD	 1-3 years <\$100,000 Unknown: grants, existing budget 	42 6	High
24	Monitor and address adverse effects from properties adjacent to conservation properties. (Aligned with resource management plans.)	New	1, 2, 4	Wildfires	ΟርΤΑ	-	 1-3 years <\$100,000 Unknown: grants, existing budget 	42 6	Low

12.2 Action Plan

All strategies listed above include an action plan of prioritized initiatives to mitigate natural hazards. The Steering Committee was asked to weigh the estimated benefits against the estimated costs of a project to establish a parameter to be used in prioritization. This benefit-cost review was qualitative and did not include the level of detail required under specific FEMA grant programs. This qualitative approach was used because projects may not be implemented for up to ten years, and the associated costs and benefits could change dramatically in that time. Each project was assessed by estimating the total cost of the initiative

44 CFR Section 201.7(c)(3)(iii)

Requires a description of how the strategies will be prioritized, implemented, and administered by the Government Agency.

and assigning subjective ratings (high, medium, and low) to benefits, as described in the sections below.

12.2.1 Cost

Participants were given a dollar range to choose from to estimate the cost of the proposed initiative:

- < \$50,000
- < \$100,000
- < \$500,000
- < \$1,000,000
- >\$1,000,000

For many of the initiatives identified, OCTA may seek financial assistance under FEMA's hazard mitigation grant programs and other federal grant programs, including:

- BRIC Program
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance grant program
- Repetitive Flood Claims grant program
- Emergency Management Performance Grant program
- Severe Repetitive Loss grant program
- California Coastal Conservancy Forest Health and Wildfire Resilience Program
- California Coastal Conservancy Climate Ready Program
- California Department of Water Resource Floodplain Management Protection and Risk Awareness Program
- California Natural Resources Agency Urban Flood Protection Program
- Cal Fire Fire Prevention Grants Program

12.2.2 Benefit

The Steering Committee evaluated each action using STAPLEE and Mitigation Effectiveness criteria, as described in Tables 12-2 and 12-3. Evaluators were asked to rate each STAPLEE and Mitigation Effectiveness criteria to develop a total score that determined each action's relative suitability and potential effectiveness.

Table 12-2 – STAPLEE Criteria

STAPLEE Criteria	Evaluation Rating
S: Is it Socially acceptable?	
T: Is it Technically feasible and potentially successful?	
A: Does the responsible city agency/department have the Administrative capacity to execute this action?	Strongly Agree = 5
P: Is it Politically acceptable?	Agree = 4
L: Is there Legal authority to implement?	Neutral = 3
E: Is it Economically beneficial?	Strongly Disagree = 1
E: Will the project have a positive impact on the natural environment?	
Will historic structures or key cultural resources be saved or protected?	
Could it be implemented quickly?	

Table	12-3 -	- Mitiaation	Effectiveness	Criteria
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Mitigation Effectiveness Criteria	Evaluation Rating
Will the implemented action result in lives saved?	Strongly Agree = 5 Agree = 4
Could it be implemented quickly?	Neutral = 3 Disagree = 2 Strongly Disagree = 1

STAPLEE scores can range from a low of nine to a high of 45. Mitigation effectiveness scores can run from a low of two to a high of ten. When these scores are combined, mitigation strategies can score within a range of 11 to 55 points. Strategies were ranked as low benefit if the total score was between zero and 17, medium benefit if the score was between 18 and 35, and high benefit if the score was 36 to 55.

12.2.3 Benefit-Cost Review

Most of the mitigation strategies will require a detailed Benefit-Cost Analysis (BCA) as part of the grant application process if the OCTA pursues grant funding. Analyses are performed using the FEMA or other applicable model process when preparing funding applications. OCTA commits to implementing mitigation strategies with benefits that exceed their costs. For projects that do not need grant funding that requires a BCA, OCTA reserves the right to define benefits that meet their needs and the goals and objectives of this plan.

12.3 Plan Adoption

OCTA will submit the final HMP to CalOES and FEMA Region IX for official approval prior to formal adoption of the plan by OCTA's Board. A copy of the adoption resolution will be included in Appendix F. OCTA will also comply with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002, and will amend its plan during regular plan updates to reflect changes in federal laws and statutes.

12.4 Plan Implementation and Maintenance Strategy

This section details the formal plan implementation and maintenance strategy to ensure that the OCTA's HMP remains an active and relevant document and supports eligibility for relevant funding sources. The plan maintenance process includes monitoring and evaluating the plan annually and submitting an updated plan to CalOES and FEMA for approval every five years. This section also describes how participation from customers and community members will continue to be a part of the plan maintenance and implementation process. The HMP's format allows sections to be reviewed and updated when new data becomes available, ensuring the plan stays current and relevant.

12.4.1 Plan Implementation

44 CFR Section 201.6(d)(3)

Entities are required to review and update their hazard mitigation plans where there are development changes, priority changes, and progress in local mitigation efforts. Plan updates must be resubmitted to the state and FEMA every five years to continue to be eligible for mitigation project grant funding.

The effectiveness of the HMP depends on the implementation of the plan through the initiatives identified in the action plan and the incorporation of mitigation principles and strategies into other OCTA and partner plans, policies, and programs. The HMP includes a range of strategies that, if implemented, would reduce losses from hazard events in the OCTA planning area. The Steering Committee has established plan goals that will be implemented through the development of new plans and incorporation into existing plans, policies, and programs.

The Security and Emergency Preparedness Manager under the OCTA Chief Executive Office will assume lead responsibility for planning and facilitating implementation and maintenance meetings. OCTA's Security and Emergency Preparedness Manager will serve as OCTA's point-of-contact for this plan. Although the Security and Emergency Preparedness Manager will have primary responsibility for convening these meetings, plan implementation and maintenance will be a shared responsibility among all OCTA departments identified as leads in the mitigation action plan.

12.4.2 Steering Committee

The Steering Committee is made up of staff from departments all across OCTA. This committee's purpose was to oversee the plan's development and make recommendations on key elements, including the maintenance strategy. The Steering Committee's position was that a similar oversight committee should have an active role in maintaining this plan. Therefore, it is recommended that the Steering Committee remain a viable body involved in the key elements of the plan maintenance strategy.

Each year, the OCTA Chief Executive Office will appoint a Steering Committee Chair to lead annual progress reporting. The Chair will be responsible for ensuring that the plan is reviewed and evaluated annually. The Security and Emergency Preparedness Manager will be responsible for facilitating annual progress review workshops.

The Steering Committee should include OCTA staff and representatives of key planning partners and stakeholders. The Steering Committee will convene to complete annual reviews at a place and time to be determined. The membership of this committee can be dynamic, which will allow for the representation of different points of view and allow a broad range of participants to have a say in the implementation of the plan. Individuals involved in the plan development process will be contacted and given the option to remain involved in plan implementation.

12.4.3 Annual Progress Report

The minimum task of the Steering Committee will be the evaluation of the progress of the plan during annual reviews. This evaluation will include the following:

- Summary of any hazard events that occurred during the prior year and their impact on the planning area
- A review of successful mitigation initiatives identified in the plan
- A brief discussion about why targeted mitigation strategies were not completed, including if planning goals and priorities have changed relative to the targeted action
- Re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended (such as changing a long-term project to a short-term project because of funding availability)
- Recommendations for new projects
- Changes in or potential for new funding options (grant opportunities)
- Impact of any other OCTA or partner planning programs or initiatives that involve hazard mitigation

To support the annual evaluation of the HMP and track progress in implementing individual strategies, lead entities listed in the action plan will complete an annual progress report using the Mitigation Strategy Evaluation and Mitigation Action Evaluation forms provided in Appendix C. The Steering Committee will complete, review, and approve progress reports, which will be the foundation of the formal annual progress of the plan. This report will be used made available as follows:

- Posted to the OCTA 2022 HMP webpage
- Provided to the local media through a press release
- Presented to the Board and Executive Office

12.4.4 Plan Updates

The OCTA intends to update the plan on a five-year cycle from the date of initial plan adoption. This cycle may be accelerated to less than five years based on the following triggers:

A Presidential Disaster Declaration that impacts the planning area A hazard event that causes loss of life

It will not be the intent of this update process to start from scratch and develop a new HMP for OCTA. Based on needs identified by the Steering Committee, plan updates will, at a minimum, include the elements below:

- The Steering Committee will convene the update process.
- The hazard risk assessment will be reviewed and updated as needed using the best available information and technologies.
- The action plan will be reviewed and revised to account for any initiatives completed, dropped, or changed and to account for changes in the risk assessment or changes in planning goals or priorities identified by the Steering Committee or under another planning mechanism, as appropriate (such as OCTA strategic plans).
- The draft HMP will be sent to appropriate partner agencies and organizations for comment.

- Customers and community members will be given opportunities to comment on the update before adoption.
- The Board will approve a new resolution to adopt the updated plan.

12.4.5 Continuing Patron and Community Member Involvement

OCTA customers and community members will be updated on HMP status through the OCTA.net/HMP web page. Copies of the HMP annual progress reports will be distributed to stakeholders and the media, where appropriate.

Additionally, a new community engagement strategy will be initiated based on guidance from the Steering Committee each time the plan is updated. This strategy will be based on the needs and capabilities of OCTA during the plan update. At a minimum, the strategy will provide multiple opportunities for OCTA customers and community members to comment on the draft plan update online or other methods.

12.4.6 Integration with Other Planning Mechanisms

The information on hazards, risks, vulnerability, and mitigation strategies in this HMP is based on the best science and technology currently available. This information can be invaluable in informing decisions made under other planning efforts, such as OCTA's strategic and facilities planning. OCTA will use information from this plan as the best available science and data on natural hazards impacting OCTA's service area. As information becomes available from other agency planning efforts to enhance this plan, it will be incorporated in the HMP during the update process.

OCTA 2022 Hazard Mitigation Plan

Appendices



Appendix A. Acronyms and Definitions

Acronyms

Acronym	Definition
ALERT	Automated Local Evaluation in Real Time
BCA	Benefit-Cost Analysis
BCAR	FEMA's Benefit-Cost Analysis Tool
CAHAN	California Health Alert Network
CD	Communicable Disease
CDC	Centers for Disease Control
CEA	California Earthquake Authority
CEO	Chief Executive Officer
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CIP	Capital Improvements Plan
СООР	Continuity of Operations Plan
COVID-19	Coronavirus
DEWS	Drought Early Warning System
DHS	Department of Homeland Security
DMA	Disaster Mitigation Act
EAP	Emergency Action Plan
EAS	National Emergency Alert System
EF Scale	Enhanced Fujita Scale
ЕОР	Emergency Operations Plan
EPA	US Environmental Protection Agency
FCD	Flood Control District
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FP	Floodplain
GIS	Geographic Information System
HAN	CDC Health Alert Network
HAZUS-MH	Hazards United States-Multi Hazard
HHSA	Health and Human Services Agency
HMGP	Hazard Mitigation Grant Program
НМР	Hazard Mitigation Plan
HVAC	Heating, Ventilation, and Air Conditioning
ID	Identification
LHMP	Local Hazard Mitigation Plan

Acronym	Definition
LOC	Location
NASA	National Aeronautics and Space Administration
NCDC	National Climatic Data Center
NEHRP	National Earthquake Hazards Reduction Program
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OC	Orange County
OCFA	Orange County Fire Authority
OES	Office of Emergency Services
OSHA	US Occupational Safety and Health Administration
PPE	Personal Protective Equipment
PSAF	Pandemic Severity Assessment Framework
RDMD	Orange County Resources and Development Management Department
SEMS	Standardized Emergency Management System
SFHA	Special Flood Hazard Area
SLR	Sea Level Rise
STAPLEE	Social, Technical, Administrative, Political, legal Economic, and Environmental
THIRA	Threat and Hazard Identification Risk Assessment
UCLA	University California, Los Angeles
US	United States
USFS	US Forest Service
USGS	US Geological Survey
WEA	Wireless Emergency Alert
WHO	World Health Organization
WUI	Wildland Urban Interface

Definitions

100-Year Floodplain – An area inundated by a flood with a one percent chance of being equal or greater each year.

500-year Floodplain – An area inundated by floodwaters with a 0.2 percent chance of being equal or greater each year.

Aftershock – Lower-magnitude earthquakes that follow an initial primary earthquake.

Alluvial Fans – Found in dry mountainous regions where rock and soil erode from mountainsides and build up on valley floors in a fan shape.

Asset – Any human-made or natural feature that has value, including, but not limited to, people, buildings, infrastructure, such as bridges, roads, sewers, and water systems; lifelines, such as electricity and communication resources; and environmental, cultural, or recreational features such as parks, wetlands, and landmarks.

Benefit/Cost Analysis – A systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost-effectiveness.

Benefit – A benefit is a net project outcome and is usually defined in monetary terms. Benefits may include direct and indirect effects. For benefit-cost analysis mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including reducing expected property losses (buildings, contents, and functions) and protecting human life.

Building – A building is defined as a walled and roofed structure, principally above-ground and permanently fixed to a site. The term includes manufactured homes on permanent foundations on which the wheels and axles carry no weight.

Capability Assessment – A capability assessment provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an Authority's mission, programs, policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process. A community's strategy to reduce losses is identified, reviewed, and analyzed, and the framework for implementation is identified. The following capabilities were reviewed under this assessment: legal and regulatory capability, administrative and technical capability, and fiscal capability.

Coastal Flood – Occur by seawater and coastlines, often due to severe weather events and cause coastline erosion.

Communicable Disease – An illness transmitted from an infected agent to an animal or individual through direct or indirect contact.

Critical Area – An area defined by state or local regulations as deserving special protection because of unique natural features or its value as a habitat for a wide range of flora and fauna species. A sensitive/critical area is usually subject to more restrictive development regulations.

Critical Facility – Those facilities and infrastructure that are critical to the health and welfare of the population. These become especially important after any hazard event occurs. For this plan, critical facilities include the following:

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials
- Public and private utilities, facilities, and infrastructure are vital to maintaining or restoring standard services to areas damaged by hazard events
- Government facilities

Crown Fire – A type of fire that burns through the top layer of trees, called the canopy. They are the most intense and difficult to contain.

Dam – Any artificial barrier and/or any controlling works, together with appurtenant works, can or do impound or divert water.

Dam Failure – An uncontrolled release of impounded water due to structural deficiencies in the water barrier.

Debris Flow – A form of a rapid mass movement in which loose soil, rock, and sometimes organic matter combine with water to form a slurry that flows downslope.

Derecho – A widespread and long-lived windstorm associated with thunderstorms that can cause damage similar to a tornado.

Disaster Mitigation Act of 2000 (DMA) – A Public Law 106-390 that is the latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. The DMA established a pre-disaster hazard mitigation program and new requirements for the national post-disaster (HMGP).

Disease Vector – an agent that carries and transmits infectious diseases, such as an insect, fungus, or animal.

Drainage Basin – The area within which all surface water (whether from rainfall, snowmelt, springs, or other sources) flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Drainage basins are also referred to as watersheds or basins.

Droughts – Extended periods of extremely low rainfall and snowpack lead to groundwater shortages impacting a large area of people, animals, and the environment.

Earthquake Magnitude – The seismic wave/amplitude measured and recorded by seismographs from an earthquake's epicenter. Magnitude is represented by a class name and numerical value from 3 to 8.

Emergency Operations Plan (EOP) – A formal document that provides an entity's emergency response procedures, structure, and authorities.

Epicenter (seismology) – The point on the ground's surface directly above the focus point where the fault ruptures.

Epidemic – Happens when there is a significant and unexpected increase in disease cases.

Essential Workers – Individuals that work in roles that are critical to infrastructure operations.

Excessive/Extreme Heat – A combination of high temperatures and humidity, where the human body cannot maintain internal temperatures and cause heat-stroke.

Fault – A fracture in the Earth's crust where compression or tension pressure causes displacement of soil and rock on the opposite side of the fracture.

Flash Flood – A rapid rise in water with a high flow velocity that carries debris. Flash floods have enough force to pull up and carry significant amounts of large debris (e.g., cars and trees).

Flood – Inundation of ordinarily dry land resulting from rising and overflowing of a body of water.

Flood Insurance Rate Map (FIRM) – The official maps on which FEMA has delineated the Special Flood Hazard Area (SFHA).

Floodplain – An area of land neighboring a waterway or waterbody that is known to be flood-prone.

Focal Depth – The depth from the earth's surface to the hypocenter.

Fuels – Materials that burn in a fire, such as paper products, flammable gases or chemicals, or wood products. The material composition determines how flammable it is, based on moisture level, chemical makeup, and material density. The less moisture and lower density, the faster and hotter it burns.

General Severe Weather – Systems that form over broad geographic areas that can cross regional and jurisdictional boundaries.

Hazard Mitigation Grant Program (HMGP) – Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA. The Act provides grant information to states, tribes, and local governments.

Hazardous Material – Any biological agent and disease-causing material that has the reasonable potential to cause death, disease, behavioral changes, cancer, genetic mutation, psychological problems, or physical deformations to an exposed person or their unborn children.

Hazards US Multi-Hazard (HAZUS-MH) Loss Estimation Program – A GIS-based program to support the development of risk assessments required under the DMA. The HAZUS-MH software program quantitatively estimates damages and losses associated with natural hazards. HAZUS-MH is FEMA's nationally applicable, standardized methodology and software program. It contains modules for estimating potential losses from hazards.

Herd Immunity – when enough of the population becomes resistant to a disease by recovering from the illness or vaccination.

Hypocenter – The region underground where an earthquake's energy originates.

Infectious Diseases – Medical conditions/illnesses caused by organisms like bacteria, viruses, fungi, or parasites.

Inundation Area – The area of land that would be flooded following a dam failure.

Landslide – A large amount of rock, debris, or earth that travels down a slope.

Liquefaction – A loss of soil strength or cohesion results in the soil behaving like a thick liquid (e.g., quicksand).

Local Government – Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, a council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government. Any Indian tribe or authorized tribal organization, or Alaska Native village or organization. Any rural community, unincorporated town or village, or other public entity.

Localized Severe Weather – Damaging storms in a limited geographic area can include severe weather types.

Mass Movement – A collective term for landslides, debris flows, falls, and sinkholes.

Mitigation – A preventive action that can be taken to reduce or eliminate the risk to life or property in advance of an event.

Mitigation Actions – Specific actions to achieve goals and objectives that minimize the effects of a disaster and reduce life and property loss.

Modified Mercalli Scale – A measurement of the level of intensity felt on the ground's surface in populated areas, represented by a Roman numeral from I to X.

Mortality Rate – A mathematical measure of the frequency that individuals die in a defined population during a specific period.

Mudslide (or Mudflow) – A river of rock, earth, organic matter, and other water-saturated materials.

Objective – For this plan's purposes, an objective is defined as a short-term aim that forms a strategy or course of action to meet a goal when combined with other objectives. Unlike goals, objectives are specific and measurable.

Outbreak – Similar to an epidemic but limited to a specific geographic area or group of people.

Pandemic – Occur when a disease crosses multiple countries and infects a large number of people.

Preparedness – Actions that strengthen an entity's capability to respond to disasters and support their community.

Presidential Disaster Declaration – These declarations are typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A presidential disaster declaration puts into motion long-term federal recovery programs, some of which are matched by state programs designed to help disaster victims, businesses, and public entities.

Risk – The estimated impact of a hazard on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms, such as a high, moderate, or low likelihood of sustaining damage above a determined threshold due to the occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses from the hazard.

Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) – Public Law 100-107 signed on November 23, 1988. This law amended the Disaster Relief Act of 1974, Public Law 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially for FEMA and its programs.

Runup – A measurement of the height of the water onshore observed above a reference sea level.

Seiches – A standing wave/oscillation in an enclosed or partially enclosed body of water varies in a period from a few minutes to several hours.

Severe Local Storm – Small atmospheric systems, including tornadoes, thunderstorms, and windstorms. Typically, significant impacts from a severe storm are on transportation infrastructure and utilities. These storms may cause many destructions and even death, but the impact is generally confined to a small area.

Sinkhole – A collapse depression in the ground with no visible outlet and underground drainage.

Slope Failures – Occur when the soils' strength forming the slope is exceeded by the pressure, such as weight or saturation, acting upon them.

Stakeholder – Individuals and organizations with a vested interest in a project and/or plan, such as business leaders, civic groups, academia, non-profit organizations, major employers, critical facilities managers, farmers, developers, special purpose districts, etc.

Steering Committee – The group that oversaw all phases of the HMP's development. Committee members included key stakeholders and community members in the planning area.

Stormwater Management – Physical and natural systems used by people to control and regulate surface and stormwater runoff flow.

Storm Surge – When a coastal flood happens simultaneously as a high tide, causing the coastal flood to reach farther and bring more water than it would during a lower tide.

Surface Rupture – An area of the ground that is offset (raised, lowered, tilted) when a fault rupture reaches the ground's surface.

Terrain/Topography – The ground's slope can help or halt the spread of a wildfire. For example, significant gaps in vegetation or waterways such as rivers and creeks can stop a wildfire from spreading. Fires also move faster upslope than down due to elevation changes and warm air rising.

Thunderstorm – A local storm with thunder and lightning can cause tornadoes, heavy rain, flash floods, hail, and high winds.

Tornadoes – A destructive rotating column of wind generated by a thunderstorm, shaped in a funnel that reaches the ground.

Tsunami – Comes from the Japanese words for *harbor* ("tsu") and *wave* ("nami"). A long high sea wave caused by an earthquake, submarine landslide, or other disturbance.

Tsunami from a large undersea earthquake – The earthquake must cause significant vertical deformation on the seafloor to generate a tsunami.

Tsunami Advisory – Issued when strong currents and dangerous waves of one to three feet are expected.

Tsunami Warning – Issued by PTWC when a potential tsunami with significant widespread inundation is imminent or expected.

Tsunami Watch – Issued when an event may later impact the watch area; can be upgraded to a tsunami warning.

Vulnerability – A description of how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. The vulnerability of a

community is often related to another's nearby community's vulnerability. Also, indirect effects can be much more widespread and damaging than direct effects.

Watershed – An area that drains downgradient from areas of higher land to lower land areas to the lowest point, a common drainage basin.

Wildland Urban Interface Area (WUI) – An area susceptible to wildfires and wildland vegetation and urban or suburban development occur together. An example would be smaller urban areas and dispersed rural housing in forested areas.

Wildfire – Fires result in uncontrolled destruction of forests, brush, field crops, grasslands, and personal property in non-urban areas. Because of their distance from firefighting resources, they can be difficult to contain and cause a great deal of destruction.

Windstorm – A storm featuring violent winds. Southwesterly winds are associated with intense storms moving onto the coast from the Pacific Ocean. Southern winds parallel to the coastal mountains are the strongest and most destructive winds. In addition, windstorms tend to damage ridgelines facing the wind.

Winter Storm – A cold event with significant precipitation in snow, ice, freezing rain, sleet, etc. Higher elevations get more precipitation.

Appendix B. Hazard Mitigation Plan Annual Progress Report

Annual Hazard Mitigation Progress Reporting Form

OCTA Department:		
Prepared By:	_ Title:	0017

For the 12-month period ending: _____ Date: _____

Instructions: Complete this form for each entity. Check the box beside the Yes or No options. Complete descriptions for each question to which a Yes response applies, inserting additional lines as needed.

Please answer the following questions to the best of your knowledge for the preceding 12 months:

1. Did OCTA experience any hazard events resulting in losses?

 \Box No \Box Yes – Describe (e.g., deaths, injuries, property damage, and indirect impacts such as loss of use, economic or environmental impacts, if a damage assessment was conducted, emergency or disaster declaration):

2. Have there been any observed impacts, physical changes, or new studies that materially affected the hazards analysis?

 \Box No \Box Yes – Describe:

3. Have any additional mitigation initiatives been identified that were not previously addressed in the Hazard Mitigation Plan?

□ No □ Yes – For each new initiative, complete a Mitigation Action Evaluation Form.

4. Have any identified mitigation initiatives been completed and successful?

 \Box No \Box Yes – Review:

5. Were there targeted strategies in the past year that did not get completed?

 \Box No \Box Yes – Discuss:

6. Do any mitigation strategies in the current plan need timeline amendments (such as changing a long-term project to a short-term project due to funding)?

 \Box No \Box Yes – Describe:

7. Have there been any changes in potential or new funding options, including grant opportunities?

 \Box No \Box Yes – Describe:

8. Were there any other planning programs or initiatives that involved hazard mitigation? If so, what was their impact?

 \Box No \Box Yes – Describe:

9. Has public awareness of hazards improved?

 \Box No \Box Yes – Describe:

Appendix C. Mitigation Action Evaluation Forms

The OCTA Hazard Mitigation Plan Steering Committee will review the status of hazard mitigation strategies using this form, informing the Annual Progress Report. Mitigation Action Evaluation



Project ID:	Project Name: _		
1. Project Description:			
2. Affected Entity:		 	
3. Lead Entity:		 	
4. Status and Priority Level:		 	
5. Anticipated Completion Time	eframe:	 	
6. Actual Timeframe Completed	d:	 	
7. Anticipated Cost:		 	
8. Actual Cost to Complete:		 	
9. Funding Source(s):			

10. Anticipated Benefit vs. Cost – (For those projects with a measurable benefit in terms of future loss reduction, please quantify. For projects less easily quantified, please provide a qualitative assessment of the benefit to the cost):

11. Other Comments:

Prepared By: _____

Appendix D. Planning Process and Public Outreach

This appendix includes materials from workshops 1-4, the OCTA Customer Open House, and the Public Risk Assessment Survey. Workshop materials include (1) agenda, (2) PowerPoint, (3) sign-in sheet, and (4) summary notes. The unconsolidated version of the Hazard Identification and Ranking Survey completed by the Steering Committee follows Workshop 2 – Risk Assessment.

Appendix E. FEMA Region IX Local Hazard Mitigation Plan Review Tool

The *Local Hazard Mitigation Plan Review Tool* demonstrates how the Local Hazard Mitigation Plan meets the regulation in 44 CFR §201.6 and offers State and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The <u>Regulation Checklist</u> provides a summary of FEMA's evaluation of whether the plan has addressed all requirements.
- The <u>Plan Assessment</u> identifies the plan's strengths as well as documents areas for future improvement. This section also includes a list of resources for implementation of the plan.
- The <u>Multi-Jurisdiction Summary Sheet</u> is a mandatory worksheet for multi-jurisdictional plans that is used to document which jurisdictions are eligible to adopt the plan.
- The Hazard Identification and Risk Assessment Matrix is a tool for plan reviewers to identify if all components of Element B are met.

Jurisdiction:	Title of Plan:		Date of Plan:
Orange County Transportation	Orange County Tran	sportation Authority	2021
Authority (OCTA)	2021 Hazard Mitigation Plan		
Local Point of Contact:	Address:		
Matt Ankley	550 S Main Street, O		range, CA 92868
Title:			
Emergency Management Specialist			
Agency:			
ОСТА			
Phone Number:		E-Mail:	
(714) 560-5961		mankley@octa.net	

State Reviewer:	Title:	Date:
	Sr. Local Willigation Platfiler	1-10-2022
Tina Phan		
Tina.Phan@caloes.ca.gov	Lead Reviewer	3-23-2022
(916) 539-1625		
Date Received at State Agency	12-15-2021, 3-24-2022	
Date Sent to FEMA		

FEMA Reviewer:	Title: Date:	
Kathryn Strelevitz	Hazard Mitigation Planner (CERC) 4-15-2022	
Xing Liu	Sr. Community Planner 4-18-2022	
Date Received in FEMA Region IX	3-24-2022	
Date Not Approved		
Date Approvable Pending Adoption	4-27-2022	
Date Approved		

SECTION 1: REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in the *Local Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)		Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING	PROCESS			
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	a. Does the plan provide documentation of how the plan was prepared? This documentation must include the schedule or timeframe and activities that made up the plan's development as well as who was involved.	Part 1, Section 2: Plan Methodology (pp. 13-20) Appendix D: Planning Process and Public Outreach		
	jurisdiction(s) participating in the plan that are seeking approval?	Authority's Response to the 2000 Disaster Mitigation Act (p. 10)	х	
	c. Does the plan identify who represented each jurisdiction? (At a minimum, it must identify the jurisdiction represented and the person's position or title and agency within the jurisdiction.)	Part 1, Section 2.2: Formation of the Project Team (p. 13) Part 1, Section 2.3: Formation of the Steering Committee (pp. 13-14)	х	

1. REGULATION CHECKLIST		Location in Plan		Not
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or page number)	Met	Met
A2. Does the plan document an opportunity for neighboring	a. Does the plan document an opportunity for neighboring	Part 1, Section 2.3: Formation of the Steering Committee (pp.		
communities, local and regional agencies	agencies involved in hazard mitigation activities, agencies that	Part 1, Section 2.5: Community		
mitigation activities, agencies that have the	have the authority to regulate development, as well as other	Engagement (pp. 16-18)	х	
authority to regulate development as well as other interests to be	interested parties to be involved in the planning process?	Part 1, Section 2.6: Coordination with Other Agencies (pp. 18-20)		
involved in the planning process? (Requirement §201.6(b)(2))		Appendix D: Planning Process and Public Outreach		
	b. Does the plan identify how the stakeholders were invited to	Part 1, Section 2.3: Formation of the Steering Committee (pp.		
	participate in the process?	13-14) Part 1. Section 2.5: Community		
		Engagement (pp. 16-18)	x	
		Part 1, Section 2.6: Coordination with Other		
		Agencies (pp. 18-20)		
		Appendix D: Planning Process and Public Outreach		
A3. Does the plan document how the public was involved in the	a. Does the plan document how the public was given the opportunity to be involved in the planning	Part 1, Section 2.5: Community Engagement (pp. 16-18)		
planning process during the drafting stage?	process?	Part 1, Section 2.6: Coordination with Other		
(Requirement §201.6(b)(1))		Agencies (pp. 18-20)	x	
		Part 1, Section 3.4.2: Public Participation and Committees (p. 25)		
		Appendix D: Planning Process and Public Outreach		
1. REGULATION CHECKLI	ST	Location in Plan		Not
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Regulation (44 CFR 201.6 Lo	ocal Mitigation Plans)	(section and/or page number)	Met	Met
	b. Does the plan document how the public's feedback was incorporated into the plan?	Part 1, Section 2.5: Community Engagement (pp. 16-18)		
		Part 1, Section 2.7: Plan Development Chronology and Milestones	x	
		Appendix D: Planning Process and Public Outreach		
A4. Does the plan describe	the review and incorporation of	Part 1, Section 2.6:		
existing plans, studies, repo	orts, and technical information?	Coordination with Other		
(Requirement §201.6(b)(3))		Agencies (pp. 18-20)		
		Part 1, Section 3.5.1: Planning and Regulatory (pp. 26-28)	X	
		Appendix H. References		
A5. Is there discussion of ho	ow the community(ies) will continue	Part 3, Section 12.4.3: Annual		
public participation in the p (Requirement §201.6(c)(4)(lan maintenance process?iii))	Progress Report (p. 133)		
		Part 3, Section 12.4.5: Continuing Patron and Community Member Involvement (pg. 134)	x	
A6. Is there a description of the method and schedule for keeping the	a. Does the plan identify how, when, and by whom the plan will be monitored (how will	Part 3, Section 12.4.1: Plan Implementation (p. 132)		
plan current (monitoring,	implementation be tracked) over	Part 3, Section 12.4.2: Steering		
evaluating, and updating the mitigation plan within	time?	Committee (p. 132)		
a 5-year cycle)? (Requirement §201.6(c)(4)(i))		Part 3, Section 12.4.3: Annual Progress Report (p. 133)	x	
		Appendix B: Hazard Mitigation Plan Annual Progress Report		
		Appendix C: Mitigation Action Evaluation Forms		

1. REGULATION CHECKLI	ST	Location in Plan		Not
Regulation (44 CFR 201.6 L	ocal Mitigation Plans)	(section and/or	Met	Met
	b. Does the plan identify how,	Part 3, Section 12.4.2: Steering		
	when, and by whom the plan will	Committee (p. 132)		
	be evaluated (assessing the			
	effectiveness of the plan at	Part 3, Section 12.4.3: Annual		
	achieving stated purpose and goals) over time?	Progress Report (p. 133)		
		Part 3, Section 12.4.4: Plan	v	
		Updates (pp. 133-134)	X	
		Appendix B: Hazard Mitigation Plan Annual Progress Report		
		Appendix C: Mitigation Action Evaluation Forms		
	c. Does the plan identify how,	Part 3, Section 12.4.2: Steering		
	when, and by whom the plan will	Committee (p. 132)		
	be updated during the 5-year		Х	
	cycle?	Part 3, Section 12.4.4: Plan		
		Updates (pp. 133-134)		
ELEMENT A: REQUIRED REV	<u>/ISIONS</u>			
ELEMENT B. HAZARD IDE	ENTIFICATION AND RISK ASSESSME	NT		
(Reviewer: See Section 4 fo	r assistance with Element B)			

1. REGULATION CHECKLI	ST	Location in Plan		Not
Regulation (44 CFR 201.6 Lo	ocal Mitigation Plans)	(section and/or	Met	Met
B1. Does the plan include	a. Does the plan include a general	Part 2, Section 5: Earthquake		
a description of the type,	description of all natural hazards	(pp. 38-45, 49-50)		
location, and extent of all	that can affect each jurisdiction?			
natural hazards that can		Part 2, Section 6: Epidemic/		
affect each		Pandemic (pp. 51-55, 56-57)		
jurisdiction(s)?				
		Part 2, Section 7: Flood, Sea-		
9201.0(C)(2)(I))		Level Rise, and Cliff Erosion		
		(pp. 58-64, 69-72)		
		Part 2. Section 8: Mass Farth		
		Movements (pp. 73-77, 82-85)	Х	
		Part 2. Section 9: Severe		
		Weather Events (pp. 86-94.		
		99-101)		
		Part 2, Section 10: Tsunami		
		(pp. 102-106, 108-109)		
		Part 2, Section 11: Wildfires		
		(pp. 110-116, 120-122)		
	b. Does the plan provide rationale	Executive Summary:		
	for the omission of any natural	Identifying + Assessing Natural		
	hazards that are commonly	Hazard Risks in the Planning	x	
	recognized to affect the	Area (p. 4)	~	
	jurisdiction(s) in the planning area?	Clarifies that no hazards were		
		omitted		
	c. Does the plan include a	Part 2, Section 4.2.1:		
	description of the type of all natural	Qualitative Methods –		
	hazards that can affect each	Identifying and Prioritizing		
	jurisdiction?	Hazards of Concern (pp. 33-35)	Х	
		Appendix G: Hazards		

1. REGULATION CHECKLI Regulation (44 CFR 201.6 Lo	ST ocal Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
	d. Does the plan include a	Part 2, Section 5: Earthquake		
	description of the location for all	(pp. 40-41, 49-50)		
	natural hazards that can affect each			
	jurisdiction?	Part 2, Section 6: Epidemic/		
		Pandemic (pp. 53, 56-57)		
		Part 2, Section 7: Flood, Sea-		
		Level Rise, and Cliff Erosion (pp.		
		61, 69-72)		
		Part 2 Section 8 Mass Farth		
		Movements (pp. 82-85)	Х	
		Part 2, Section 9: Severe		
		Weather Events (pp. 90, 99-		
		101)		
		Part 2, Section 10: Tsunami (pp.		
		104-105, 108-109)		
		Part 2, Section 11: Wildfires		
		(pp. 114, 120-122)		

1. REGULATION CHECKLIST	Location in Plan		Not
Regulation (44 CFR 201.6 Local Mitigation Plans)	(section and/or	Met	Met
e. Does the plan include a description of the extent for all natural hazards that can affect each jurisdiction?	Part 2, Section 4.2.1: Qualitative Methods – Identifying and Prioritizing Hazards of Concern (pp. 33-35) Part 2, Section 5: Earthquake (pp. 39-40, 41-45, 49-50) Part 2, Section 6: Epidemic/ Pandemic (pp. 54-55, 56-57) Part 2, Section 7: Flood, Sea- Level Rise, and Cliff Erosion (pp. 69-72) Part 2, Section 8: Mass Earth Movements (pp. 74, 76, 83) Part 2, Section 9: Severe Weather Events (pp. 90-93) Part 2, Section 10: Tsunami (pp. 102-105, 108-109) Part 2, Section 11: Wildfires (np. 113, 115-116)	Х	

1. REGULATION CHECKLIS Regulation (44 CFR 201.6 Lo	ST ocal Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
B2. Does the plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	a. Does the plan include information on previous occurrences of hazard events for each jurisdiction?	 Part 2, Section 5: Earthquake (pp. 39-40) Part 2, Section 6: Epidemic/ Pandemic (p. 53) Part 2, Section 7: Flood, Sea- Level Rise, and Cliff Erosion (pp. 60-61) Part 2, Section 8: Mass Earth Movements (pp. 75, 83) Part 2, Section 9: Severe Weather Events (pp. 89-90) Part 2, Section 10: Tsunami (pp. 103-104) Part 2, Section 11: Wildfires (pp. 112-114) Appendix G: Hazards 	×	

1. REGULATION CHECKLI	ST	Location in Plan		Not
Regulation (44 CFR 201.6 Lo	ocal Mitigation Plans)	(section and/or	Met	Met
	b. Does the plan include information on the probability of future hazard events for each jurisdiction?	Part 2, Section 4.2.1: Qualitative Methods – Identifying and Prioritizing Hazards of Concern (pp. 33-35) Part 2, Section 5: Earthquake (p. 39) Part 2, Section 6: Epidemic/ Pandemic (pp. 52-53, 55) Part 2, Section 7: Flood, Sea- Level Rise, and Cliff Erosion (pp. 60, 64, 68-72) Part 2, Section 8: Mass Earth Movements (pp. 74-77, 84) Part 2, Section 9: Severe Weather Events (pp.88-90, 94) Part 2, Section 10: Tsunami (pp. 103-105) Part 2, Section 11: Wildfires (pp. 112-115, 116-117)	x	

1. REGULATION CHECKLI Regulation (44 CFR 201.6 Lo	ST ocal Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	a. Is there a description of each hazard's impacts on each jurisdiction (what happens to structures, infrastructure, people, environment, etc.)?	Part 2, Section 5: Earthquake (pp. 39, 44, 45-49) Part 2, Section 6: Epidemic/ Pandemic (pp. 52-53, 55-56) Part 2, Section 7: Flood, Sea- Level Rise, and Cliff Erosion (pp. 60-68) Part 2, Section 8: Mass Earth Movements (pp. 74-82) Part 2, Section 9: Severe Weather Events (pp. 88-99) Part 2, Section 10: Tsunami (pp. 103-104, 106-108) Part 2, Section 11: Wildfires (pp. 112-114, 116-120)	Х	
	b. Is there a description of each identified hazard's overall vulnerability (structures, systems, populations, or other community assets defined by the community that are identified as being susceptible to damage and loss from hazard events) for each jurisdiction?	Appendix G: Hazards Part 2, Section 5: Earthquake (pp. 39, 44-50) Part 2, Section 6: Epidemic/ Pandemic (pp. 52-53, 55-56) Part 2, Section 7: Flood, Sea- Level Rise, and Cliff Erosion (pp. 60, 64-72) Part 2, Section 8: Mass Earth Movements (pp. 75, 77-84) Part 2, Section 9: Severe Weather Events (pp. 89, 94- 101) Part 2, Section 10: Tsunami (pp. 103-104, 106-109) Part 2, Section 11: Wildfires (pp. 112-113, 117-122)	X	

1. REGULATION CHECKL	ST	Location in Plan	Mat	Not
Regulation (44 CFR 201.6 L	ocal Mitigation Plans)	page number)	IVIEL	Met
B4. Does the plan address f jurisdiction that have been (Requirement §201.6(c)(2)(NFIP insured structures within the repetitively damaged by floods? ii))	Part 1, Section 3.5: Hazard Mitigation Capabilities and Capacity Assessment (p. 28) <i>Clarifies that OCTA does not</i>	x	
		participate in the NFIP due to		
ELEMENT B: REQUIRED REV	<u>VISIONS</u>	mengionity		
ELEMENT C. MITIGATION	N STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources	a. Does the plan document each jurisdiction's existing authorities, policies, programs and resources?	Part 1, Section 2.6.1: Review of Policies, Plans, and Programs (pp. 19-20) Part 1, Section 3.5: Hazard	x	
and its ability to expand on and improve these existing policies and programs? (Requirement		Mitigation Capabilities and Capacity Assessment (pp. 25- 31)		
§201.6(c)(3))	b. Does the plan document each jurisdiction's ability to expand on and improve these existing policies and programs?	Part 1, Section 3.5: Hazard Mitigation Capabilities and Capacity Assessment (pp. 25- 31) Part 3, Section 12.2: Action Plan (p. 130)	x	
		Part 3, Section 12.4: Plan Implementation and Maintenance Strategy (pp. 132-134)		
C2. Does the plan address e NFIP and continued compli appropriate? (Requirement	each jurisdiction's participation in the ance with NFIP requirements, as §201.6(c)(3)(ii))	Part 1, Section 3.5: Hazard Mitigation Capabilities and Capacity Assessment (p. 28) Clarifies that OCTA does not participate in the NFIP due to ineligibility	x	
C3. Does the plan include g vulnerabilities to the identi §201.6(c)(3)(i))	oals to reduce/avoid long-term fied hazards? (Requirement	Part 3, Section 12.1: Orange County Transportation Authority 2022 Hazard Mitigation Goals (p. 124)	x	

1. REGULATION CHECKLI	ST	Location in Plan		Not
Regulation (44 CFR 201.6 Lo	ocal Mitigation Plans)	(section and/or page number)	Met	Met
C4. Does the plan identify	a. Does the plan identify and	Part 3, Section 12.1.1: Actions		
and analyze a	analyze a comprehensive range of	(pp. 124-129)		
comprehensive range of	specific mitigation actions and		Х	
specific mitigation actions	projects to reduce the impacts from	Part 3, Section 12.2: Action		
and projects for each	hazards?	Plan (pp. 130-131)		
Jurisdiction being	b. Does the plan identify mitigation	Part 3, Section 12.1.1: Actions		
effects of bazards with	actions for every hazard posing a	(pp. 124-129)	v	
emphasis on new and	threat to each participating		^	
existing buildings and	jurisdiction?			
infrastructure?	c. Do the identified mitigation	Part 3, Section 12.1.1: Actions		
(Requirement	actions and projects have an	(pp. 124-129)	v	
§201.6(c)(3)(ii))	emphasis on new and existing		^	
	buildings and infrastructure?			
C5. Does the plan contain	a. Does the plan explain how the	Part 3, Section 12.2: Action		
an action plan that	mitigation actions will be prioritized	Plan (pp. 130-131)	Х	
describes how the actions	(including cost benefit review)?			
identified will be	b. Does the plan identify the	Part 3, Section 12.1.1: Actions		
prioritized (including cost	position, office, department, or	(pp. 124-129)		
benefit review),	agency responsible for			
administored by each	implementing and administering	Part 3, Section 12.2.1: Cost (p.		
iurisdiction?	the action, potential funding	130)	Х	
(Requirement	sources and expected timeframes			
§201.6(c)(3)(iv));	for completion?			
(Requirement				
§201.6(c)(3)(iii))				
C6. Does the plan	a. Does the plan identify the local	Part 1, Section 3.5.1: Planning		
describe a process by	planning mechanisms where hazard	and Regulatory (pp. 26-28)		
which local governments	mitigation information and/or		Х	
will integrate the	actions may be incorporated?	Part 3, Section 12.1.1: Actions		
requirements of the		(pp. 124-129)		
mitigation plan into other	b. Does the plan describe each	Part 1, Section 3.5.1: Planning		
planning mechanisms,	community's process to integrate	and Regulatory (pp. 26-28)		
such as comprehensive or	the data, information, and hazard		х	
capital improvement	mitigation goals and actions into	Part 3, Section 12.4.6:		
plans, when appropriate?	other planning mechanisms?	Integration with Other		
(Requirement		Planning Mechanisms (p. 134)		
§201.6(c)(4)(ii))	c. The updated plan must explain	N/A: This is OCTA's initial HMP,		
	how the jurisdiction(s) incorporated	not an update.		
	the mitigation plan, when			
	appropriate, into other planning	The sections identified in C6-a	N/A	
	mechanisms as a demonstration of	and C6-b describe how OCTA's		
	progress in local hazard mitigation	HMP will be integrated into		
	efforts.	other planning mechanisms.		

1. REGULATION CHECKLIST Regulation (AA CER 201 6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not
	page number)		wet
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMEN	TATION		
(Applicable to plan updates only)		1	
D1. Was the plan revised to reflect changes in development?	N/A: This is OCTA's initial		
(Requirement §201.6(d)(3))	HMP, not an update. The		
	following sections describe		
	recent development trends.		
	Part 2 Section 5: Earthquake		
	(n 49)		
	(p. +5)		
	Part 2, Section 6: Epidemic/		
	Pandemic (p. 56)		
	Part 2, Section 7: Flood, Sea-		
	Level Rise, and Cliff Erosion	NI / A	
	(pp. 68-69)	N/A	
	Part 2, Section 8: Mass Earth		
	Movements (p. 82)		
	Part 2 Section 9: Severe		
	Weather Events (n. 99)		
	weather Events (p. 55)		
	Part 2, Section 10: Tsunami (p.		
	108)		
	Part 2, Section 11: Wildfires (p.		
	120)		
D2. Was the plan revised to reflect progress in local mitigation	N/A: This is OCTA's initial		
efforts? (Requirement §201.6(d)(3))	HMP, not an update. The		
	following sections describe the		
	planned revision process.		
	Dart 2 Section 12 / 2: Annual	N/A	
	Progress Report (p. 122)		
	FIORIESS REPORT (p. 155)		
	Part 3. Section 12.4.4: Plan		
	Updates (pp. 133-134)		

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
D3. Was the plan revised to reflect changes in priorities?	N/A: This is OCTA's initial		
(Requirement §201.6(d)(3))	HMP, not an update. The		
	following sections describe the		
	planned revision process.		
		Ν/Δ	
	Part 3, Section 12.4.3: Annual	11/7	
	Progress Report (p. 133)		
	Part 3, Section 12.4.4: Plan		
	Updates (pp. 133-134)		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the plan include documentation that the plan has been	Not yet. See Appendix F: Plan		
formally adopted by the governing body of the jurisdiction	Adoption and Resolution for		Х
requesting approval? (Requirement §201.6(c)(5))	adoption resolution language		
E2. For multi-jurisdictional plans, has each jurisdiction	N/A		
requesting approval of the plan documented formal plan		N/A	
adoption? (Requirement §201.6(c)(5))			
ELEMENT E: REQUIRED REVISIONS			
E1. FEMA will issue formal approval upon receipt of adoption docu	umentation.		
ELEMENT F. ADDITIONAL STATE REQUIREMENTS			
(Optional for State Reviewers only; not to be completed by FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS	•	•	

SECTION 2: PLAN ASSESSMENT

INSTRUCTIONS: The purpose of this Plan Assessment is to offer the local community more comprehensiv feedback to the community on the quality and utility of the plan in a narrative for<u>mat. FEM</u> <u>must complete the Plan Assessment</u>.

The Assessment is an opportunity for FEMA to provide feedback and information to the community on:1) suggested improvements to the plan; 2) specific sections in the plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing

partnership(s) and information on other FEMA programs, specifically Risk MAP and Hazard Mitigation Assistance programs.

The Plan Assessment is divided into two sections:

- 1) Plan Strengths and Opportunities for Improvement
- 2) Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan elements listed in the Regulation Checklist. Each element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

Strengths:

1) The plan documents a broad community engagement plan. It includes many methods of, and chances for, public engagement. OCTA translated materials into several languages to best engage their constituents.

2) Appendix D: Planning Process and Public Outreach includes comprehensive planning materials, meeting minutes and public outreach items. These materials are very helpful to understand OCTA's planning process.

3) Tables 2-1 and 2-2 summarize key information about the planning process for easy reference.

Opportunities for Improvement:

1) Along with survey results, detail what public comments, if any, you received through the open house and comment period. Also, describe how you incorporated public feedback (e.g., informing hazard prioritization, vulnerability assessment, or mitigation actions).

Element B: Hazard Identification and Risk Assessment

Strengths:

1) The hazard description sections use a consistent format. This makes it very easy to find and compare information.

2) The plan describes potential impacts of climate change for each hazard. This is critical in developing long term mitigation activities.

3) Each section includes graphics. Some include narrative supplements, all of which help understand risk, impact, and vulnerability in OCTA's service area.

Opportunities for Improvement:

 Include Table G-1 in Section 4.2: Risk Assessment Methodology. This will give the reader additional important context for Tables 4-2 and 4-3, as well as those referenced in each scenario-specific chapter.
 Detail how you determined severity, magnitude, frequency, onset, and duration scores. To describe the

process as "qualitative" is helpful, but the scores referenced (e.g., 3.02, 1.91) are specific.

3) Include additional metrics of extent where data is available. For example, stream height and flow are often used to describe flood intensity.

Element C: Mitigation Strategy

Strengths:

1) Mitigation actions cover a broad range of activities. They include continuous data acquisition and review, infrastructure upgrades, and enhancing internal communication.

2) The table in *Section 3.5.1: Hazard Mitigation Capabilities and Capacity Assessment, Planning and Regulatory* is a useful overview of current authorities that informed the plan and how they will be used to implement it.

Opportunities for Improvement:

1) Integrate other priorities into the mitigation action prioritization process. For example, if OCTA seeks to advance equity or clean energy, it may assign points to actions that further those goals.

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

Strengths:

1) The plan proposes a robust process for monitoring and evaluation. It includes details about roles and responsibilities, opportunities for continued public engagement, and outlines for an Annual Progress Report and Mitigation Action Evaluations.

Opportunities for Improvement:

1) N/A

Appendix F. Hazards

Definitions of Hazard Ranking Factors

Table G-1 – Definitions of Hazard Ranking Factors

Rank	Severity	Magnitude	Frequency	Onset	Duration
1	No injuries or deaths expected – minimal damage or impacts on natural systems.	A single or limited number of properties impacted	Less than every 25 years	Greater than 30 days of warning	Only brief moments
2	Between 1 and 5 injuries or deaths. Minimal to moderate damage or impacts on natural systems.	Neighborhood or small community impacted	10–25 years	5–30 days of warning	1–24 hours
3	Between 5 and 25 injuries or deaths. Moderate damage or impacts on natural systems.	City or town impacted	5–10 years	1–5 days of warning	Days to weeks
4	Between 25 and 50 injuries or deaths. Extensive damage or impacts on natural systems.	Entire county impacted	1–5 years	1–10 hours of warning	Weeks to months
5	Greater than 50 injuries or deaths. Catastrophic damage or impacts on natural systems.	State and/or region impacted	Once per year	No warning	Months to years

Original Hazard Identification and Raking Results

Original 12 hazards and output tables, later condensed into the seven hazards profiles in this. The scores were measured with one is the lowest and five is the highest.

	Severity	Magnitude	Frequency	Onset	Duration	Average Score	Rank
Wildfire	3.82	4.18	4.55	4.18	2.91	3.93	1
Earthquake	4.09	4.18	2.82	5.00	2.27	3.67	2
Pandemic	4.18	4.27	1.55	2.91	4.18	3.42	3
Severe Weather	3.27	3.18	3.73	3.18	2.55	3.18	4
Flooding	2.85	3.18	3.36	3.36	2.64	3.08	5
Sea Level Rise	3.00	3.36	3.45	1.55	4.18	3.11	6
Storm Surge	3.18	2.73	3.64	3.45	2.18	3.04	7
Extreme Heat	3.18	3.45	3.36	2.18	3.00	3.04	8
Drought	2.55	3.00	3.27	1.45	4.36	2.93	9
Tsunami	3.73	3.00	1.45	4.18	1.82	2.84	10

Table G-2 – Original OCTA Hazard Ranking Worst-Case Scenario

	Severity	Magnitude	Frequency	Onset	Duration	Average Score	Rank
Cliff Erosion	2.45	2.36	2.73	2.91	2.73	2.64	11
Earth Movement	2.55	2.45	1.91	3.73	1.82	2.49	12

Table G-3 – OCTA Original Hazard Ranking Most-Likely Scenario

	Severity	Magnitude	Frequency	Onset	Duration	Average Score	Rank
Wildfire	3.73	3.64	4.45	4.00	3.55	3.87	1
Earthquake	3.09	3.82	3.09	4.82	1.91	3.35	2
Pandemic	4.00	4.00	1.18	3.00	4.09	3.25	3
Severe Weather	2.55	3.27	3.36	3.09	2.73	3.00	4
Extreme Heat	3.00	2.82	3.64	2.45	2.91	2.96	5
Sea Level Rise	2.82	3.00	2.91	1.55	4.36	2.93	6
Storm Surge	2.55	2.36	3.36	3.55	2.18	2.80	7
Flooding	2.73	2.45	3.36	2.82	2.45	2.76	8
Drought	2.27	2.55	3.18	1.36	4.36	2.75	9
Cliff Erosion	2.36	2.00	2.73	2.82	2.91	2.56	10
Earth Movement	2.18	2.09	1.64	3.36	1.73	2.20	11
Tsunami	2.18	2.18	1.09	3.45	2.00	2.18	12

Comprehensive List of FEMA Disaster Declarations

Table G-4 – FEMA Disaster Declarations for the Planning Area (Federal Emergency Management Agency, 2020)

Type of Incident	Date	Event Effects	Disaster ID
Severe Weather and Flood	1/26/1969	Severe storms and flooding	DR-253-CA
Wildfire	9/29/1970	Brush fires	DR-295-CA
Earthquake	2/9/1971	San Fernando	DR-299-CA
Severe Weather, Flood, Mass Earth Movement	2/15/1978	Coastal storms, mudslides, and flooding	DR-547-CA
Mass Earth Movement	10/9/1978	Landslides	DR-566-CA
Wildfire	10/29/1978	Brush fires	EM-3067-CA
Severe Weather, Flood, Mass Earth Movement	2/21/1980	Severe storms, mudslides, and flooding	DR-615-CA
Wildfire	11/27/1980	Brush and timber fires	DR-635-CA
Fire	4/24/1982	Urban fire	DR-657-CA

Type of Incident	Date	Event Effects	Disaster ID
Severe Weather, Flood, Mass Earth Movement	2/9/1983	Coastal storms, floods, slides, tornadoes	DR-677-CA
Earthquake	10/7/1987	Whittier Narrows	DR-799-CA
Severe Weather, Storm Surge, Flood	2/5/1988	Severe storms, high tides, flooding	DR-812-CA
Wildfire	6/30/1990	Fires	DR-872-CA
Severe Weather	2/11/1991	Severe freeze	DR-894-CA
Severe Weather, Flood, Mass Earth Movement	2/25/1992	Snowstorm, heavy rain, high winds, flooding, mudslide	DR-935-CA
Severe Weather, Flood, Mass Earth Movement	2/3/1993	Severe storm, winter storm, mud and landslides, and flooding	DR-979-CA
Wildfire, Mass Earth Movement, Erosion, Flood	10/28/1993	Fires, mud and landslides, soil erosion, and flooding	DR-1005-CA
Earthquake	1/17/1994	Northridge	DR-1008-CA
Severe Weather, Flood, Mass Earth Movement	1/10/1995	Severe winter storm, flooding, landslides, mudflows	DR-1044-CA
Severe Weather, Mass Earth Movement, Flood	3/12/1995	Severe winter storms, flooding, landslides, mudflows	DR-1046-CA
Wildfire	10/23/1996	Severe fires	EM-3120-CA
Severe Weather and Flood	2/9/1998	Severe winter storms and flooding	DR-1203-CA
Wildfire	5/14/2002	Antonio fire	FSA-2405-CA
Wildfire	6/6/2002	Copper fire	FSA-2417-CA
Wildfire	9/4/2002	Leona fire	FSA-2462-CA
Wildfire	9/24/2002	Williams fire	FSA-2464-CA
Wildfire	1/7/2003	Pacific fire	FM-2466-CA
Wildfire	10/24/2003	Verdale fire	FM-2502-CA
Wildfire	10/27/2003	Wildfires	DR-1498-CA
Wildfire	7/12/2004	Pine fire	FM-2528-CA
Wildfire	7/18/2004	Foothill fire	FM-2534-CA
Wildfire	7/21/2004	Crown fire	FM-2535-CA
Severe Weather, Flooding, Mass Earth Movements	2/4/2005	Severe storms, flooding, debris flows, and mudslides	DR-1577-CA
Severe Weather, Flooding, Mass Earth Movements	4/14/2005	Severe storms, flooding, landslides, mud, and debris flows	DR-1585-CA
Wildfire	9/28/2005	Topanga fire	FM-2583-CA
Wildfire	2/6/2006	Sierra fire	FM-2630-CA
Wildfire	3/11/2007	241 fire	FM-2683-CA
Severe Weather	3/13/2007	Severe freeze	DR-1689-CA
Wildfire	5/9/2007	Griffith Park fire	FM-2691-CA
Wildfire	5/10/2007	Island fire	FM-2694-CA

Type of Incident	Date	Event Effects	Disaster ID
Wildfire	7/8/2007	Canyon fire	FM-2708-CA
Wildfire	10/21/2007	Canyon fire	FM-2732-CA
Wildfire	10/21/2007	Buckweed fire	FM-2733-CA
Wildfire	10/22/2007	Santiago fire	FM-2737-CA
Wildfire	10/22/2007	Ranch fire	FM-2736-CA
Wildfire	10/23/2007	Wildfires	EM-3279-CA
Wildfire	10/24/2007	Wildfires	DR-1731-CA
Wildfire	4/27/2008	Santa Anita fire	FM-2763-CA
Wildfire	10/12/2008	Mareck fire	FM-2788-CA
Wildfire	10/13/2008	Sesnon fire	FM-2789-CA
Wildfire	11/15/2008	Sayre fire	FM-2791-CA
Wildfire	11/15/2008	Freeway complex fire	FM-2792-CA
Wildfire	11/18/2008	Wildfires	DR-1810-CA
Wildfire	8/27/2009	PV fire	FM-2828-CA
Wildfire	8/28/2009	Station fire	FM-2830-CA
Severe Weather, Flood, Mass Earth Movement	3/8/2010	Severe winter storms, flooding, and debris and mudflows	DR-1884-CA
Severe Weather, Flood, Mass Earth Movement	1/26/2011	Winter storms, flooding, and debris and mudflows	DR-1952-CA
Wildfire	6/2/2013	Power House fire	FM-5025-CA
Wildfire	1/16/2014	Colby fire	FM-5051-CA
Earthquake	8/24/2014	South Napa	DR-4193-CA
Wildfire	6/5/2016	Old fire	FM-5124-CA
Wildfire	6/21/2016	Fish fire	FM-5129-CA
Wildfire	7/9/2016	Sage fire	FM-5132-CA
Wildfire	7/23/2016	Sand fire	FM-5135-CA
Severe Weather, Flood, Mass Earth Movement	3/16/2017	Severe winter storms, flooding, and mudslides	DR-4305-CA
Wildfire	9/2/2017	La Tuna fire	FM-5201-CA
Wildfire	9/26/2017	Canyon fire	FM-5213-CA
Wildfire	10/9/2017	Canyon 2 fire	FM-5223-CA
Wildfire	10/10/2017	Wildfires	DR-4344-CA
Wildfire	12/5/2017	Creek fire	FM-5225-CA
Wildfire	12/5/2017	Rye fire	FM-5226-CA
Wildfire	12/6/2017	Skirball fire	FM-5227-CA
Wildfire	12/8/2017	Wildfires	EM-3396-CA
Wildfires, Flood, Mass Earth Movements	1/2/2018	Wildfires, flooding, and mud and debris flows	DR-4353-CA

Type of Incident	Date	Event Effects	Disaster ID
Wildfire	11/9/2018	Wildfires	EM-3409-CA
Wildfire	11/12/2018	Wildfires	DR-4407-CA
Wildfire	10/11/2019	Saddleridge fire	FM-5293-CA
Wildfire	10/24/2019	Tick fire	FM-5296-CA
Pandemic	3/13/2020	COVID-19	EM-3428-CA
Pandemic	3/22/2020	COVID-19	DR-4482-CA

Comprehensive List of Severe Weather Events

Table 0-5 – Severe Weather Events in the Planning Area Resulting in Deaths, Injuries, or Costs Equal or Greater Than \$25,000 (National Oceanic and Atmospheric Administration)

Date	Severe Weather Type	Deaths/Injuries	Property Damage Value
5/9/1956	Tornado	1 injury	\$25,000
5/14/1962	Tornado	0	\$25,000
11/7/1966	Tornado	10 injuries	\$250,000
3/16/1977	Tornado	4 injuries	\$2,500,000
5/8/1977	Tornado	0	\$2,500,000
2/9/1977	Tornado	6 injuries	\$2,500,000
11/9/1982	Tornado	0	\$2,500,000
3/1/1983	Tornado	30 injuries	\$25,000,000
9/30/1983	Tornado	0	\$250,000
10/1/1983	Tornado	3 injuries	\$2,500
3/16/1986	Tornado	0	\$2,500,000
6/5/1987	Tornado	0	\$25,000,000
1/18/1988	Tornado	0	\$25,000
12/7/1992	Tornado	0	\$250,000
1/14/1993	Tornado	0	\$500,000
1/17/1993	Tornado	0	\$50,000
1/17/1993	Tornado	1 injury	\$5,000,000
1/18/1993	Tornado	0	\$50,000
2/8/1993	Tornado	0	\$50,000
2/23/1993	Thunderstorm	0	\$50,000
11/11/1993	Tornado	2 injuries	\$1,000
2/7/1994	Tornado	0	\$50,000
2/7/1994	Tornado	0	\$500,000
10/21/1996	Wildfire	16 injuries	\$1,500,000
10/21/1996	Wildfire	0	\$3,000,000
1/1/1997	Storm Surge/Tide	27 injuries	\$0

Date	Severe Weather Type	Deaths/Injuries	Property Damage Value
1/20/1997	Heavy Rain	4 injuries	\$0
8/5/1997	Rip Current	1 death/3 injuries	\$0
9/14/1997	High Surf	4 injuries	\$0
12/6/1997	Flash Flood	0	\$17,700,000
1/9/1998	Tornado	1 injury	\$0
2/6/1998	Flood	0	\$4,290,000
2/6/1998	Flash Flood	0	\$880,000
2/7/1998	Flash Flood	1 death/2 injuries	\$0
2/9/1998	Flash Flood	1 death	\$0
2/23/1998	Flash Flood	3 deaths	\$0
2/23/1998	Flash Flood	2 deaths/2 injuries	\$29,700,000
5/2/1998	High Surf	1 death	\$0
7/20/1998	Lightning	1 injury	\$0
12/1/1998	Heavy Rain	0	\$140,000
12/6/1998	Thunderstorm	0	\$450,000
12/9/1998	High Wind	0	\$50,000
12/9/1998	Wildfire	0	\$25,000
2/9/1999	Dust Storm	1 injury	\$0
2/20/1999	High Surf	1 death/3 injuries	\$0
4/9/1999	High Wind	1 injury	\$0
5/26/1999	Lightning	1 death	\$0
6/23/1999	High Surf	3 injuries	\$250,000
6/18/1999	Rip Current	1 death	\$0
7/13/1999	Lightning	1 injury	\$0
12/27/1999	Wildfire	1 injury	\$0
2/10/2000	Heavy Rain	1 death/4 injuries	\$300,000
2/23/2000	Thunderstorm	1 injury	\$0
3/3/2000	Lightning	0	\$50,000
3/5/2000	Thunderstorm	0	\$100,000
3/6/2000	Hail	1 death	\$75,000
4/17/2000	Rip Current	1 death	\$0
5/18/2000	Rip Current	1 death	\$0
5/27/2000	Rip Current	2 injuries	\$0
6/4/2000	Rip Current	1 death	\$0
8/1/2000	Rip Current	2 injuries	\$0
8/17/2000	Rip Current	1 death	\$0
8/2/2000	Wildfire	0	\$100,000

Date	Severe Weather Type	Deaths/Injuries	Property Damage Value
9/11/2000	Wildfire	2 injuries	\$0
10/27/2000	Flood	0	\$30,000
1/9/2001	Storm Surge/Tide	0	\$240,000
1/10/2001	Flood	3 injuries	\$0
1/11/2001	Flash Flood	0	\$1,000,000
2/11/2001	Heavy Rain	0	\$250,000
2/12/2001	Flood	0	\$60,000
2/13/2001	Thunderstorm	0	\$25,000
2/24/2001	Dense Fog	1 injury	\$0
2/24/2001	Tornado	0	\$50,000
4/20/2001	Thunderstorm	1 injury	\$0
5/12/2001	Rip Current	1 death	\$0
9/16/2001	Rip Current	1 injury	\$0
9/19/2001	Rip Current	1 death	\$0
12/7/2001	Rip Current	1 death/1 injury	\$0
1/23/2002	Wildfire	1 injury	\$0
2/9/2002	Wildfire	0	\$1,200,000
5/13/2002	Wildfire	0	\$250,000
9/1/2002	Wildfire	14 injuries	\$12,700,000
9/1/2002	Heat	1 death	\$0
9/22/2002	Wildfire	14 injuries	\$15,300,000
11/03/2002	Dense Fog	41 injuries	\$0
11/7/2002	Rip Current	1 death	\$0
11/8/2002	Flood	0	\$150,000
11/20/2002	Wildfire	2 injuries	\$0
12/15/2002	Rip Current	5 injuries	\$0
12/16/2002	Flood	0	\$150,000
2/25/2003	Heavy Rain	1 injury	\$150,000
6/26/2003	Rip Current	1 death	\$0
7/1/2003	Rip Current	1 injury	\$0
7/21/203	Rip Current	1 death	\$0
7/24/2003	Rip Current	1 death	\$0
7/28/2003	Lightning	1 injury	\$0
11/12/2003	Flash Flood	0	\$35,000
11/12/2003	Hail	0	\$3,500,000
2/2/2004	Flash Flood	0	\$75,000
2/26/2004	Flash Flood	0	\$25,000

Date	Severe Weather Type	Deaths/Injuries	Property Damage Value
2/26/2004	Flash Flood	0	\$30,000
10/20/2004	Flash Flood	1 death	\$0
11/27/2004	Strong Wind	1 death/1 injury	\$0
12/28/2004	Thunderstorm	0	\$30,000
1/7/2005	Heavy Rain	0	\$5,000,000
1/7/2005	Heavy Rain	0	\$15,000,000
1/9/2005	Flash Flood	0	\$300,000
1/9/2005	Flash Flood	0	\$50,000
1/9/2005	Flash Flood	1 death	\$0
1/9/2005	Flash Flood	0	\$500,000
2/18/2005	Heavy Rain	0	\$20,000,000
2/19/2005	Thunderstorm	0	
2/20/2005	Flash Flood	0	\$1,000,000
2/20/2005	Debris Flow	1 death	\$300,000
2/21/2005	Flash Flood	0	\$100,000
2/22/2005	Flash Flood	0	\$30,000
4/28/2005	Thunderstorm	0	\$45,000
12/21/2005	Coastal Flood	1 injury	\$0
2/6/2006	Wildfire	8 injuries	\$0
4/10/2007	High Surf	2 deaths	\$0
9/3/2007	Excessive Heat	8 deaths	\$0
9/22/2007	Flash Flood	0	\$300,000
1/6/2008	Flash Flood	0	\$40,000
5/22/2008	Flash Flood	0	\$500,000
5/22/2008	Flash Flood	0	\$150,000
12/15/2008	Heavy Rain	14 injuries	\$250,000
1/18/2010	Heavy Rain	0	\$100,000
1/19/2010	Tornado	0	\$500,000
1/19/2010	Thunderstorm	0	\$350,000
1/19/2010	Thunderstorm	0	\$25,000
1/20/2010	Heavy Rain	0	\$50,000
12/19/2010	Flood	0	\$36,000,000
12/22/2010	Flash Flood	0	\$12,300,000

Reportable Diseases and Rates

Table 0-6 – Orange County 2019 Reportable Diseases and Rates (Orange County Health Care Agency, 2019)

Diseases/ Conditions	Common Name	2015	2016	2017	2018	2019
Amebiasis	Amoebic Dysentery	13	14	11	7	12
Botulism		3	3	3	0	0
Brucellosis		5	2	2	2	1
Campylobacteriosis		398	488	544	575	651
Chlamydial Infection		11459	12837	13997	17277	14139
Coccidioidomycosis	Valley Fever	186	116	211	242	320
Chikungunya	СНІКV	24	2	2	0	2
Creutzfeldt-Jakob Disease	CJD	4	1	1	4	2
Cryptosporidiosis	Crypto	27	26	35	26	43
Cysticercosis	Pork Tapeworm	4	4	5	2	0
Dengue	Dengue Fever	12	12	10	12	19
E. coli, Shiga Toxin-Producing	STEC E. coli	52	50	45	105	140
Encephalitis		17	15	16	9	12
Giardiasis		126	177	126	134	163
Gonococcal Infection	Gonorrhea	2317	3060	3511	3887	3873
Haemophiles influenza, Invasive Disease	Hib	2	1	7	0	6
Hansen's Disease	Leprosy	2	1	0	0	1
Hemolytic Uremic Syndrome	HUS	0	1	0	0	0
Hepatitis A, Acute	HAV	17	26	19	10	18
Hepatitis B, Acute Non-Perinatal	HBV	10	5	13	10	7
Hepatitis B, Perinatal		2	1	4	0	-
Hepatitis C, Acute		5	6	10	5	1
Hepatitis D	HDV	0	1	0	0	2
Hepatitis E	HEV	0	3	1	0	0
Legionellosis	Legionnaires' Disease	33	57	69	40	72
Listeriosis		12	5	16	9	7
Malaria		9	9	3	4	5
Meningitis		281	234	199	172	132
Meningococcal Infections		2	11	2	2	1
Mumps		5	5	27	13	31
Pertussis	Whooping Cough	138	65	182	141	159
Q-Fever		1	0	0	2	2
Respiratory Syncytial virus	RVS	0	1	1	2	0
Rocky Mountain Spotted Fever		2	0	0	0	2

Diseases/ Conditions	Common Name	2015	2016	2017	2018	2019
Salmonellosis	Salmonella	489	359	366	437	428
Shigellosis		69	71	96	178	176
Syphilis		742	904	1130	1221	1437
Typhoid Fever, Case		2	4	7	3	7
Typhus & Other Non-Spotted Fever Rickettsioses		17	15	13	18	18
Varicella Hospitalization	Chickenpox	8	5	7	3	8
Vibrio Infections (non-Cholera)		29	12	19	31	24
West Nile Virus Infections		97	36	38	13	7
Yersiniosis		14	24	14	13	32
Zika Virus Infection		0	30	12	1	2

Appendix G. References

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Orange County Transportation Authority

Natural Hazard Mitigation Plan

Orange County Transportation Authority Hazard Mitigation Plan Our mission is to develop and deliver transportation solutions to enhance the quality of life and keep Orange County moving





Goals of the OCTA NHMP

- Support OCTA people, policies, plans, and programs to maintain a community transportation system that reduces risk and is resilient now and long term
- Minimize vulnerabilities to protect people, property, the natural environment, and keep Orange County moving
- Ensure resilience-oriented decisions are made through regional collaboration and enhanced partnerships
- Promote community engagement through transparent public outreach that is equitable and accessible to everyone in the community

OCTA NHMP – Orange County Transportation Authority Natural Hazard Mitigation Plan

Hazard Identification: OCTA NHMP Steering Committee

	Severity	Magnitude	Frequency	Onset	Duration	Average Score	Rank
Wildfire	3.82	4.18	4.55	4.18	2.91	3.93	1
Earthquake	4.09	4.18	2.82	5.00	2.27	3.67	2
Pandemic	4.18	4.27	1.55	2.91	4.18	3.42	3
Severe Weather	3.27	3.18	3.73	3.18	2.55	3.18	4
Flooding	2.85	3.18	3.36	3.36	2.64	3.08	5
Sea Level Rise	3.00	3.36	3.45	1.55	4.18	3.11	6
Storm Surge	3.18	2.73	3.64	3.45	2.18	3.04	7
Extreme Heat	3.18	3.45	3.36	2.18	3.00	3.04	8
Drought	2.55	3.00	3.27	1.45	4.36	2.93	9
Tsunami	3.73	3.00	1.45	4.18	1.82	2.84	10

Risk Assessment: OCTA NHMP Steering Committee

Top-Ranked Natural Hazard Scenarios				
	Average Score	Rank		
Wildfire	3.93	1		
Earthquake	3.67	2		
Pandemic	3.42	3		
Severe Weather	3.18	4		

Risk Assessment: OCTA NHMP Customers



OCTA NHMP Strategies

- 24 strategies were recommended that span OCTA's responsibilities to staff, facilities, ridership, communities, and the environment
- Examples include wildfire mitigation, facility infrastructure protection, and coordination of community evacuation procedures
- Due to the wide geographic area, some strategies suggest partnerships with local departments, jurisdictions, and agencies
- Strategies were constrained to OCTA assets directly owned and did not "predict" future ownership or values

Benefits Of The OCTA NHMP

- An OCTA Board-approved plan opens up previously unrealized grant funding opportunities
- Provides a specific assessment of potential hazard impacts on OCTA assets using qualitative and quantitative methods and multiple sources of data
- Informs and or compliments other OCTA planning efforts
- Suggests strategies to further reduce risks to OCTA and the community



October 10,	2022
То:	Members of the Board of Directors
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Orange County Transportation Authority Investment and Debt Programs Report – August 2022

Overview

The Orange County Transportation Authority has a comprehensive investment and debt program to fund its immediate and long-term cash flow demands. Each month, the Treasurer submits a report detailing investment allocation, performance, compliance, outstanding debt balances, and credit ratings for the Orange County Transportation Authority's debt program. This report is for the month ending August 31, 2022.

Recommendation

Receive and file as an information item.

Discussion

As of August 31, 2022, the Orange County Transportation Authority's (OCTA) outstanding investments totaled \$2.4 billion. The portfolio is divided into three managed portfolios: the liquid portfolio for immediate cash needs, the short-term portfolio for future budgeted expenditures, and the bond proceeds portfolio to meet Measure M2 (M2) transportation program needs. In addition to these portfolios, OCTA has funds invested in debt service reserve funds for the 91 Express Lanes Program.

Portfolio Compliance and Liquidity Requirements for the Next Six Months: The portfolio is in full compliance with OCTA's Investment Policy and the State of California Government Code. Additionally, OCTA has reviewed the liquidity requirements for the next six months and anticipates that OCTA's liquidity will be sufficient to meet projected expenditures during the next six months.

The weighted average book yield for the OCTA portfolio is 1.4 percent. The book yield measures the exact income, or interest, on a bond without regard to market

price change. The yield is the income return on an investment, such as the interest received from holding a particular security. The yield is usually expressed as an annual percentage rate based on the investment's cost and market value.

OCTA's month-end balance in the Local Agency Investment Fund was \$21,187,775, with an average monthly effective yield of 1.28 percent. OCTA's month-end balance in the Orange County Investment Pool (OCIP) was \$502,940. For the month of July, the monthly gross yield for the OCIP was 0.85 percent. Yields for the month of August will be received in September.

During the month of August, one security held within OCTA's investment portfolio was downgraded or placed on Negative Credit Watch. Please refer to A-8 (Rating Downgrades and Negative Credit Watch) of Attachment A for further details. As of August 31, 2022, the securities reflected on A-8 still meet the minimum ratings requirements set forth by OCTA's Investment Policy.

OCTA's debt program is separate from its investment program and is comprised of M2 Sales Tax Revenue Bonds, 91 Toll Revenue Bonds, 2021 Transportation Infrastructure Finance and Innovation Act Loan, and the 2021 Bond Anticipation Notes. The debt program currently has an outstanding principal balance of \$1.3 billion as of August 31, 2022. Approximately 45.4 percent of the outstanding balance is comprised of M2 debt, 5.3 percent is associated with the 91 Express Lanes Program, and 49.3 percent is associated with the 405 Express Lanes.

Summary

The Treasurer is submitting a copy of the Orange County Transportation Authority Investment and Debt Programs report to the Finance and Administration Committee. The report is for the month ending August 31, 2022.

Orange County Transportation Authority Investment and Debt Page 3 Programs Report – August 2022

Attachments

- A. Orange County Transportation Authority Investment and Debt Programs – For the Period Ending August 31, 2022
- B. Orange County Transportation Authority Portfolio Listing as of August 31, 2022

Prepared by:

Robert Davis Department Manager Treasury/Public Finance (714) 560-5675

Approved by:

Andrew Oftelie Chief Financial Officer Finance and Administration (714) 560-5649

Treasury/Public Finance Department's Report On

Orange County Transportation Authority Investment and Debt Programs



Presented to the Finance and Administration Committee

> For The Period Ending August 31, 2022

OCTA Investment Dashboard 8/31/2022



*Per CA Government Code LAIF limit is \$75 million

Investment Compliance 8/31/2022

Portfolio Subject to Investment Policy					
	0	Dollar Amount	Percent Of	Investment Policy	
Short-Term/Liquid Portfolio ¹		Invested	Portfolio	Max. Percentages	
U.S. Treasury Obligations	\$	848,513,195	38.7%	100%	
Federal Agency/GSE		237,658,276	10.8%	100%	
Municipal Debt	\$	87,708,996	4.0%	30%	
Commercial Paper		-	0.0%	40%	
Negotiable Certificates of Deposit	\$	6,650,000	0.3%	30%	
Repurchase Agreements		8,000,000	0.4%	25%	
Medium Term Maturity Notes/Corporates	\$	321,567,998	14.7%	30%	
Money Market/Mutual Funds		178,480,982	8.1%	20%	
Mortgage & Asset-Backed	\$	273,599,742	12.5%	20%	
Supranationals		27,472,502	1.3%	20%	
Local Agency Investment Fund	\$	21,187,775	1.0%	\$ 75 Million	
Orange County Investment Pool		502,940	0.0%	10%	
Joint Powers Authority Pools	\$	-	0.0%	10%	
Bank Deposits		22,965,355	1.0%	5%	
Variable & Floating Rate Securities	\$	158,654,970	7.2%	30%	
Total Short-Term/Liquid Portfolio	\$	2,192,962,728			

1. Excludes portion of Liquid Portfolio subject to Indenture

	Portfolio Subject to Indenture						
	Do	ollar Amount		OCTA	Indenture R	equirements	
		Invested	Credit Quality	<u>Term</u>	Credit Quality	<u>Term</u>	
Liquid Portfolio*							
Money Market Funds		92,658,846	AAA	N/A	AAA	N/A	
Total Liquid Portfolio	\$	92,658,846					
Bond Proceeds Portfolio							
2021 Bond Anticipation Notes (BANs)							
Government Obligatons MMKT Fund					Min.		
(Interest Fund)		51,083	AAAm	N/A	AAAm (S&P)	N/A	
Government Obligatons MMKT Fund					Min.		
(Project Fund)		80,234,529	AAAm	N/A	AAAm (S&P)	N/A	
Total Bond Proceeds Portfolio		80,285,612					
Pesanta Funda Portfolia							
Reserve Fullas Portiolio					Min	Мах	
Commercial Paper	\$	24,388,186	P-1/A-1	122 - 179 days	P-1/A-1	180 days	
Bank Deposits		453,400	N/A	N/A	N/A	N/A	
			Aaa-mf/				
Government Obligatons MMKT Fund**		551,513	AAAm/AAAmmf	Varies	N/A	N/A	
Total Reserve Funds Portfolio		25,393,100					
Total Portfolio Subject to Indenture		105,678,711					
Portfolio Total	\$	2,391,300,285					

*Reflects portion of Liquid Portfolio subject to Indenture (OCTA Sales Tax Revenue) **91 EL Debt Service Fund

Investment Manager Diversification and Maturity Schedules

MetLife Investment Management 8/31/2022



Investment Manager Diversification and Maturity Schedules

PFM 8/31/2022



Investment Manager Diversification and Maturity Schedules

Chandler Asset Management 8/31/2022



Investment Manager Diversification and Maturity Schedules Payden & Rygel



Short-Term Portfolio 8/31/2022

Portfolio Composition





Rating Downgrades & Negative Credit Watch 8/31/2022

oody's	Fitch Ratings
A2	BBB+
<u>נ</u>	ody's A2

Negative Credit Watch:

N/A

DEBT PROGRAM

(M2 Sales Tax Revenue Bonds, 91 Toll Revenue Bonds, 2021 TIFIA Loan (I-405), 2021 Bond Anticipation Notes (BANs))

Orange County Local Transportation Authority (OCLTA-M2)

2010 Series & Taxable Build America Bonds - Sales	Tax Revenue Bonds
Issued: Outstanding: Debt Service FY 2023: All in True Interest Cost: Pledged Revenue Source: Ratings (Fitch/ Moody's/ S&P): Final Maturity: 2019 M2 Sales Tax Bond Issued: Outstanding: Debt Service FY 2023: All in True Interest Cost: Pledged Revenue Source: Ratings (Fitch/ S&P): Final Maturity:	\$ 293,540,000 250,000,000 17,270,000 4.33% M2 Sales Tax Revenues AA+/Aa2/AA+ 2041 \$ 376,690,000 360,170,000 37,613,650 3.14% M2 Sales Tax Revenues AA+/AA+ 2041
91 Express	anes
2013 OCTA 91 Express Lanes Refunding Bonds	
Issued: Outstanding: Debt Service FY 2023: All in True Interest Cost: Pledged Revenue Source: Ratings (Fitch/ Moody's/ S&P): Final Maturity:	\$ 124,415,000 71,420,000 10,794,700 3.83% 91 Toll Road Revenues A+/A1/AA- 2030
405 Expres	s Lanes
2021 Bond Anticipation Notes	
Issued: Outstanding: Debt Service FY 2023: All in True Interest Cost: Pledged Revenue Source: Ratings (Moody's/ S&P): Final Maturity:	\$ 662,820,000 662,820,000 32,141,000 0.34% Collateral ² Aa3/AA 2024
2021 TIFIA Loan Amount Available Outstanding: Accrued Interest: Interest Rate: Pledged Revenue Source: Ratings (Moody's/Kroll): Final Maturity:	\$ 628,930,000 - - 1.95% 405 Toll Road Revenues Baa2/BBB- 2058

1. Comprised of OCTA's debt obligations (M2 Sales Tax Revenue Bonds, 91 Toll Revenue Bonds, 2021 TIFIA Loan (I-405), and 2021 BANs) currently outstanding and irrespective of OCTA's investment program.

2. Comprised of (a) proceeds from draws under the TIFIA Loan Agreement; (b) any legally available funds of OCTA except (i) LTF Revenue, (ii) federal grant funds, (iii) any revenues and assets with respect to the SR 91 Express Lanes, and (iv) any revenues received from operation of the freeway callbox system in Orange County and the freeway service patrol; (c) proceeds from the purchase and sale of OCTA bonds by OCTLA under and pursuant to the Standby Bond Purchase Agreement; and (d) all amounts held by the Trustee in the funds and accounts established under the indenture, including investment earnings thereon, excluding amounts deposited to the Rebate Fund



TOTAL OUTSTANDING DEBT: \$1,344,410,000

*Comprised of OCTA's debt obligations (M2 Sales Tax Revenue Bonds, 91 Toll Revenue Bonds, 2021 TIFIA Loan (I-405), and 2021 BANs) currently outstanding and irrespective of OCTA's investment program.

ATTACHMENT B

т	A3 017	-ugust 51, 2022			
	LIQU	JID PORTFOLIO			
DESCRIPTION		MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
CASH EQUIVALENTS BANK DEPOSITS		N/A	22 965 354 53	22 965 354 53	
MONEY MARKET DEMAND ACCOUNT		N/A	172,388,829.00	172,388,829.00	1.14%
FIDELITY TREASURY OBLIGATIONS FUND FEDERATED TREASURY OBLIGATIONS FUND		N/A N/A	4,573,637.00	4,573,637.00	2.06%
	SUB-TOTAL		288,013,029.08	288,013,029.08	
LOCAL AGENCY INVESTMENT FUND (LAIF)		N/A	21,187,774.67	21,187,774.67	1.28%
ORANGE COUNTY INVESTMENT POOL (OCIP)		N/A	502,940.41	502,940.41	0.85%
			<u> </u>	3 303.103.144.10	
	SHORT	TERM PORTFOLIO			
DESCRIPTION		MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
Money Market Funds FIRST AMER:GVT OBLG Z		8/31/2022	1,041,302.67	1,041,302.67	2.01
FIRST AMER:GVT OBLG Z FIRST AMER:GVT OBLG Z		8/31/2022 8/31/2022	547,294.21 1.550.460.18	547,294.21 1.550.460.18	2.01 2.01
FIRST AMER: GVT OBLG Z		8/31/2022	335,974.53	335,974.53	2.01
FIRST AMER:GVT OBLG Z		8/31/2022	477,760.81	477,760.81	2.01
FIRST AMER:GVT OBLG Z FIRST AMER:GVT OBLG Z		8/31/2022 8/31/2022	730,459.71 293,289.66	730,459.71 293,289.66	2.01 2.01
	SUB-TOTAL		6,092,152.81	6,092,152.81	
AGRICOLE REPO		9/1/2022	8.000.000.00	8.000.000.00	2.23
	SUB-TOTAL		8,000,000.00	8,000,000.00	
NEGOTIABLE CERTIFICATES OF DEPOSIT					
Credit Suisse AG, New York Branch Credit Suisse AG, New York Branch		8/16/2024 3/17/2023	3,550,000.00 3,100,000.00	3,547,692.50 3,043,704.00	4.13 3.95
	SUB-TOTAL		6,650,000.00	6,591,396.50	
U.S. TREASURY OBLIGATIONS		4/20/2025	607 920 94	699 765 00	2.51
UNITED STATES TREASURY UNITED STATES TREASURY		4/30/2025	1,743,779.30	1,721,912.50	3.51
UNITED STATES TREASURY UNITED STATES TREASURY		9/30/2025 9/30/2025	2,513,183.59 7,002,734.38	2,464,350.00 6,900,180.00	3.49 3.49
UNITED STATES TREASURY UNITED STATES TREASURY		10/31/2025	8,032,812.50 7,750,937,50	7,883,440.00 7 697 520 00	3.49 3.51
UNITED STATES TREASURY		11/15/2025	6,818,164.06	6,735,330.00	3.51
UNITED STATES TREASURY		10/31/2023	8,007,187.50	7,833,760.00	3.46
UNITED STATES TREASURY UNITED STATES TREASURY		4/30/2024 4/30/2024	3,103,259.38 1,352,433.98	2,890,292.00 1,259,620.50	3.47 3.47
UNITED STATES TREASURY		5/15/2025	4,842,382.81	4,823,250.00	3.50
UNITED STATES TREASURY		5/15/2025	7,114,933.59	7,046,781.25	3.48
UNITED STATES TREASURY		10/31/2024	3,611,739.65	3,343,439.30	3.46
UNITED STATES TREASURY UNITED STATES TREASURY		10/31/2024 11/30/2024	1,570,096.29 1,519,250.78	1,453,460.70 1,402,854.70	3.46 3.48
UNITED STATES TREASURY		11/30/2024	4,402,568.36	4,069,715.00	3.48
UNITED STATES TREASURY		12/31/2024	4,074,494.92	3,760,481.60	3.47
UNITED STATES TREASURY UNITED STATES TREASURY		12/31/2024	6,738,417.97	5,640,722.40 6,251,440.00	3.47
UNITED STATES TREASURY UNITED STATES TREASURY		12/31/2024 12/31/2024	5,909,964.84 2.896.906.25	5,482,032.00 2.692,928.00	3.47 3.47
UNITED STATES TREASURY		12/31/2024	1,252,682.23	1,159,435.94	3.45
UNITED STATES TREASURY		1/31/2025	8,313,750.00	7,611,600.00	3.49
UNITED STATES TREASURY UNITED STATES TREASURY		3/31/2025	7,862,500.00	7,414,720.00	3.49
UNITED STATES TREASURY UNITED STATES TREASURY		3/31/2025 3/31/2025	4,433,906.25 10,137,753.91	4,170,780.00 9,968,945.31	3.49 3.47
UNITED STATES TREASURY		4/30/2025	7,440,527.34	6,909,075.00 6 866 325 00	3.50
UNITED STATES TREASURY		6/30/2025	6,811,054.69	6,395,970.00	3.48
UNITED STATES TREASURY		7/31/2025	7,729,375.00	7,286,240.00	3.50
UNITED STATES TREASURY UNITED STATES TREASURY		10/15/2023 10/15/2023	1,855,350.00 3,142,863.28	1,791,993.75 3,034,828.13	3.47 3.47
UNITED STATES TREASURY UNITED STATES TREASURY		10/15/2023	3,142,248.05 2 070 298 83	3,034,828.13 1 999 132 81	3.47 3.47
UNITED STATES TREASURY		10/15/2023	5,685,972.66	5,491,593.75	3.47
UNITED STATES TREASURY		10/15/2023	1,906,344.14	1,839,941.20	3.48
UNITED STATES TREASURY UNITED STATES TREASURY		11/15/2023 11/15/2023	2,872,130.08 1,250,927.73	2,762,604.60 1,203,225.00	3.44 3.44
UNITED STATES TREASURY UNITED STATES TREASURY		12/15/2023 12/15/2023	7,978,437.50 6.600.433.99	7,666,880.00 6.392,261,20	3.45 3.45
UNITED STATES TREASURY		12/15/2023	9,840,435.94	9,564,432.80	3.45
UNITED STATES TREASURY		12/15/2023	4,923,437.50	4,792,187.50	3.45
UNITED STATES TREASURY		12/15/2023	2,418,842.77	2,324,023.00	3.45
UNITED STATES TREASURY UNITED STATES TREASURY		12/15/2023 1/31/2023	1,336,964.06 20,219,510,75	1,284,202.40 19.960.695.30	3.45 3.19
UNITED STATES TREASURY		1/31/2023	4,766,249.14	4,705,056.30	3.19
UNITED STATES TREASURY		2/15/2024	1,030,512.30	986,075.55	3.48
UNITED STATES TREASURY UNITED STATES TREASURY		3/15/2024 3/15/2024	2,744,306.64	2,969,616.00 2,617,450.00	3.49
UNITED STATES TREASURY UNITED STATES TREASURY		3/15/2024 3/31/2023	2,547,714.26 1,709,064.84	2,431,849.00 1,679,476.50	3.49 3.25
UNITED STATES TREASURY		3/31/2023	1,604,247.66	1,576,350.75	3.25
UNITED STATES TREASURY		4/15/2024	9,864,843.75	9,510,200.00	3.51
UNITED STATES TREASURY		4/15/2024	4,544,199.61 3,600,851.56	3,518,774.00	3.51
UNITED STATES TREASURY UNITED STATES TREASURY		4/15/2024 4/15/2024	21,702,656.25 1,564,073.05	20,930,937.50 1,507,978.91	3.48 3.48
UNITED STATES TREASURY UNITED STATES TREASURY		4/15/2024 4/15/2024	4,925,781.25 2 091 551 17	4,757,031.25 1 987 631 80	3.48 3.51
UNITED STATES TREASURY		4/15/2024	910,675.39	865,428.20	3.51
UNITED STATES TREASURY		4/30/2023	6,767,287.44 5,008,450.41	4,904,890.20	3.34 3.34
UNITED STATES TREASURY UNITED STATES TREASURY		5/15/2024 5/15/2024	3,988,281.25 19,313,009.17	3,787,800.00 18,318,747.75	3.48 3.48
UNITED STATES TREASURY UNITED STATES TREASURY		5/15/2024 5/15/2024	2,361,089.00 4 144 488 28	2,239,536.75	3.48
UNITED STATES TREASURY		5/15/2024	13,003,460.56	12,334,023.75	3.48
UNITED STATES TREASURY UNITED STATES TREASURY		5/15/2024 5/31/2023	306,787.50 905,804.69	303,024.00 898,113.20	3.48 3.37
UNITED STATES TREASURY UNITED STATES TREASURY		5/31/2023 6/15/2024	393,828.13 10,975,937.50	390,484.00 10,388,510.00	3.37 3.48
UNITED STATES TREASURY UNITED STATES TREASURY		6/15/2024 6/15/2024	7,485,058.59	7,083,075.00	3.48 3.48
UNITED STATES TREASURY		6/15/2024	4,572,867.19	4,344,286.00	3.48

DESCRIPTION	6/15/2024	274 870 31	264 434 80	YIELD 3.48
UNITED STATES TREASURY	6/15/2024	4 181 132 81	3 967 687 50	3.46
UNITED STATES TREASURY	6/15/2024	3,995,436.33	3,844,878.13	3.46
UNITED STATES TREASURY	6/15/2024	9,962,285.15	9,919,218.75	3.46
UNITED STATES TREASURY	6/15/2024	3,600,351.56	3,589,812.50	3.46
UNITED STATES TREASURY	6/15/2024	942,489.84	892,467.45	3.48
UNITED STATES TREASURY	6/15/2024	4,470,820.31	4,249,845.00	3.48
UNITED STATES TREASURY	6/15/2024	5,973,750.00	382 486 05	3.40
UNITED STATES TREASURY	6/15/2024	1 987 031 25	1 888 820 00	3.48
UNITED STATES TREASURY	6/15/2024	1,991,250.00	1,888,820.00	3.48
UNITED STATES TREASURY	7/15/2024	7,502,050.78	7,083,975.00	3.46
UNITED STATES TREASURY	7/15/2024	304,904.69	288,081.65	3.46
UNITED STATES TREASURY	7/15/2024	2,844,656.25	2,691,910.50	3.46
UNITED STATES TREASURY	7/15/2024	5,506,015.63	5,194,915.00	3.46
UNITED STATES TREASURY	7/15/2024	1,544,818.95	1,459,298.85	3.46
UNITED STATES TREASURY	7/15/2024	1 597 062 50	1 511 248 00	3.40
UNITED STATES TREASURY	7/15/2024	1 197 750 00	1 133 436 00	3.46
UNITED STATES TREASURY	7/15/2024	2,402,625.00	2,266,872.00	3.46
UNITED STATES TREASURY	7/15/2024	674,920.90	637,557.75	3.46
UNITED STATES TREASURY	7/15/2024	748,623.05	708,397.50	3.46
UNITED STATES TREASURY	7/31/2023	334,424.22	324,950.00	3.48
UNITED STATES TREASURY	8/15/2024	7,914,375.00	7,535,280.00	3.47
UNITED STATES TREASURY	8/15/2024	3,095,035.16	2,919,921.00	3.47
UNITED STATES TREASURY	8/15/2024	6 143 273 44	5 792 746 50	3.47
UNITED STATES TREASURY	8/15/2024	998.164.06	941.910.00	3.47
UNITED STATES TREASURY	8/15/2024	2,497,265.63	2,354,775.00	3.47
UNITED STATES TREASURY	8/31/2023	1,622,333.98	1,571,050.00	3.53
UNITED STATES TREASURY	8/31/2023	5,607,706.25	5,433,416.00	3.53
UNITED STATES TREASURY	8/31/2023	4,358,904.30	4,224,916.00	3.53
UNITED STATES TREASURY	9/15/2024	7,484,472.66	7,045,350.00	3.48
UNITED STATES TREASURY	9/15/2024	2,988,164.06	2,818,140.00	3.48
UNITED STATES TREASURY	9/15/2024	745 927 73	704 535 00	3.40
UNITED STATES TREASURY	9/30/2023	824 258 79	796 966 50	3.48
UNITED STATES TREASURY	10/15/2024	3,059,865.23	2,896,988.25	3.48
UNITED STATES TREASURY	10/15/2024	1,248,974.61	1,177,637.50	3.48
UNITED STATES TREASURY	10/15/2024	1,243,847.66	1,177,637.50	3.48
UNITED STATES TREASURY	10/31/2023	12,316,224.06	11,891,715.76	3.46
UNITED STATES TREASURY	10/31/2023	2,368,227.54	2,292,065.00	3.46
UNITED STATES TREASURY	10/31/2023	19,949,218.75	19,301,600.00	3.46
UNITED STATES TREASURY	11/15/2023	8 004 375 00	7 537 840 00	3.40
UNITED STATES TREASURY	11/15/2024	653.386.88	616.218.42	3.49
UNITED STATES TREASURY	11/15/2024	4,987,500.00	4,711,150.00	3.49
UNITED STATES TREASURY	11/15/2024	3,359,311.52	3,180,026.25	3.49
UNITED STATES TREASURY	11/15/2024	1,269,073.24	1,201,343.25	3.49
UNITED STATES TREASURY	11/30/2023	3,429,921.88	3,316,091.20	3.47
UNITED STATES TREASURY	11/30/2023	7,376,296.88	7,133,452.00	3.47
UNITED STATES TREASURY	11/30/2023	619 152 34	597 667 60	3.47
UNITED STATES TREASURY	11/30/2023	1 994 375 00	1 927 960 00	3.47
UNITED STATES TREASURY	11/30/2023	14,939,062.50	14,459,700.00	3.47
UNITED STATES TREASURY	12/15/2024	8,000,000.00	7,566,240.00	3.48
UNITED STATES TREASURY	12/15/2024	1,241,743.75	1,172,767.20	3.48
UNITED STATES TREASURY	12/15/2024	2,004,531.25	1,891,560.00	3.48
UNITED STATES TREASURY	12/15/2024	3,597,328.13	3,404,808.00	3.48
UNITED STATES TREASURY	12/15/2024	1,750,063.59	1,000,110,00	3.40
UNITED STATES TREASURY	12/31/2023	2 874 829 11	2 773 483 75	3.49
UNITED STATES TREASURY	12/31/2023	1.240.581.25	1.196.215.60	3.49
UNITED STATES TREASURY	12/31/2023	10,001,171.87	9,646,900.00	3.49
UNITED STATES TREASURY	12/31/2023	500,058.59	482,345.00	3.49
UNITED STATES TREASURY	12/31/2023	1,000,117.19	964,690.00	3.49
UNITED STATES TREASURY	1/31/2024	2,693,803.52	2,612,087.70	3.51
UNITED STATES TREASURY	1/31/2024	10,187,925.00	9,881,595.24	3.51
UNITED STATES TREASURY	1/31/2024	10,100,910.75	9,002,009.11	3.51
UNITED STATES TREASURY	1/31/2024	4 377 189 89	4 241 991 87	3.51
UNITED STATES TREASURY	1/31/2024	1,089,859.38	1,060,257.00	3.51
UNITED STATES TREASURY	1/31/2024	4,981,746.09	4,867,543.50	3.51
UNITED STATES TREASURY	1/31/2024	286,307.03	279,522.30	3.51
UNITED STATES TREASURY	1/31/2024	340,337.11	332,535.15	3.51
UNITED STATES TREASURY	1/31/2024	128,344.53	125,303.10	3.51
UNITED STATES TREASURY	2/15/2025	3,467,187,50	3 336 620 00	3.50
UNITED STATES TREASURY	2/15/2025	1 882 187 50	1 811 308 00	3.50
UNITED STATES TREASURY	2/29/2024	2,586,661.33	2,515,744.70	3.48
UNITED STATES TREASURY	2/29/2024	3,619,498.23	3,540,497.85	3.48
UNITED STATES TREASURY	2/29/2024	619,346.10	602,224.60	3.48
UNITED STATES TREASURY	3/15/2025	1,899,568.75	1,858,908.00	3.48
UNITED STATES TREASURY	4/15/2025	2,959,745.32	2,915,274.40	3.50
UNITED STATES TREASURY	4/15/2025	3,519,243.36	3,468,002.60	3.50
UNITED STATES TREASURY	4/15/2025	2 536 436 33	2 499 505 40	3.50
UNITED STATES TREASURY	5/15/2025	9 813 236 72	9 591 637 20	3.50
UNITED STATES TREASURY	5/15/2025	1,210,803.52	1,186,695.40	3.50
UNITED STATES TREASURY	5/15/2025	3,536,669.53	3,486,530.70	3.50
UNITED STATES TREASURY	5/15/2025	2,056,966.80	2,010,517.00	3.50
UNITED STATES TREASURY	5/15/2025	435,288.87	426,621.90	3.50
UNITED STATES TREASURY	5/15/2025	7,349,303.71	7,203,535.30	3.50
UNITED STATES TREASURY	5/15/2025	1 246 191 41	1 225 925 00	3.50
UNITED STATES TREASURY	6/15/2025	4.220.085.94	4,159,951,20	3.50
UNITED STATES TREASURY	6/15/2025	846,878.91	835,924.00	3.50
UNITED STATES TREASURY	6/15/2025	5,494,318.75	5,423,671.60	3.50
UNITED STATES TREASURY	6/15/2025	403,481.25	398,293.20	3.50
UNITED STATES TREASURY	6/15/2025	3,545,423.83	3,491,212.00	3.50
UNITED STATES TREASURY	6/15/2025	1,248,388.67	1,229,300.00	3.50
UNITED STATES TREASURY	5/30/2027	4,753,792.97	4,6/7,581.00	3.36
UNITED STATES TREASURY	7/15/2025	3 546 384 77	3 497 638 80	3.49
		0,010,004.77	0,000,000	0.40

DESCRIPTION	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
UNITED STATES TREASURY	7/15/2025	2,162,177.73	2,121,276.00	3.49
UNITED STATES TREASURY	7/15/2025	104,606.25	103,597.20	3.49
UNITED STATES TREASURY	7/15/2025	1,275,496.05	1,257,966.00	3.49
UNITED STATES TREASURY	7/15/2025	2,994,960.94	2,959,920.00	3.49
UNITED STATES TREASURY	7/15/2025	998,320.31	986,640.00	3.49
UNITED STATES TREASURY	7/31/2027	4,592,712.50	4,486,452.00	3.35
UNITED STATES TREASURY	8/15/2025	2,629,279.69	2,628,237.60	3.49
UNITED STATES TREASURY	8/15/2025	945,748.44	945,373.60	3.49
UNITED STATES TREASURY	8/31/2024	3,132,640.63	3,126,498.00	3.47
UNITED STATES TREASURY SUB-	TOTAL	848,513,194.51	816,723,773.38	3.47
FEDERAL AGENCY/GSE	-			
FEDERAL HOME LOAN BANKS	9/8/2023	4,135,800.00	3,952,400.00	3.57
FEDERAL HOME LOAN BANKS	9/8/2023	6 686 160 00	5,952,400.00	3.57
FEDERAL HOME LOAN BANKS	3/8/2024	5,201,750.00	4,878,200.00	3.54
FEDERAL HOME LOAN BANKS	2/12/2026	2,897,970.00	2,603,736.00	3.79
FEDERAL HOME LOAN BANKS	2/12/2026	1,249,125.00	1,122,300.00	3.79
FEDERAL HOME LOAN BANKS	12/20/2024	5,994,720.00	5,679,300.00	3.43
FEDERAL HOME LOAN BANKS	2/28/2025	4,095,000.00	3,957,981.30	3.62
FEDERAL HOME LOAN BANKS	2/28/2025	4 720 823 80	820,488.00	3.67
FEDERAL HOME LOAN BANKS	7/8/2024	1,706,682.60	1,695,037.50	3.49
FEDERAL HOME LOAN BANKS	6/9/2023	3,977,720.00	3,960,840.00	3.42
FEDERAL HOME LOAN BANKS	6/9/2023	4,029,880.00	3,960,840.00	3.42
FEDERAL FARM CREDIT BANKS FUNDING CORP	6/26/2023	6.967.450.00	6.894.510.00	3.65
FEDERAL FARM CREDIT BANKS FUNDING CORP	2/1/2023	4,996,450.00	4,971,900.00	3.21
FEDERAL FARM CREDIT BANKS FUNDING CORP	8/14/2023	4,993,550.00	4,906,750.00	3.61
FEDERAL FARM CREDIT BANKS FUNDING CORP	8/14/2023 2/21/2023	7,983,280.00	7,749,120.00	3.58
FEDERAL FARM CREDIT BANKS FUNDING CORP	10/2/2023	4,994,600.00	4,823,850.00	3.53
FEDERAL FARM CREDIT BANKS FUNDING CORP	2/25/2025	4,956,270.00	4,789,400.00	3.54
FEDERAL HOME LOAN MORTGAGE CORP	8/12/2025	4,095,490.00	3,762,229.70	3.57
FEDERAL HOME LOAN MORTGAGE CORP	11/25/2024	1.570.000.00	1.460.492.50	3.73
FEDERAL HOME LOAN MORTGAGE CORP	11/25/2024	680,000.00	632,570.00	3.73
FEDERAL HOME LOAN MORTGAGE CORP	7/21/2025	4,785,000.00	4,764,898.22	4.20
FEDERAL HOME LOAN MORTGAGE CORP	8/28/2025	2,250,000.00	2,246,715.00	4.10
FEDERAL HOME LOAN MORTGAGE CORP	8/28/2025	2,250,000.00	2,246,805.00	4.10
FEDERAL HOME LOAN MORTGAGE CORP	8/28/2025	810,000.00	808,849.80	4.25
FEDERAL HOME LOAN MORTGAGE CORP	2/28/2025	2,230,000.00	2,226,454.30	4.07
FEDERAL NATIONAL MORTGAGE ASSOCIATION	5/22/2023	6.111.548.70	5.983.002.60	3.63
FEDERAL NATIONAL MORTGAGE ASSOCIATION	7/10/2023	3,203,098.50	3,122,334.90	3.51
FEDERAL NATIONAL MORTGAGE ASSOCIATION	7/10/2023	5,000,300.00	4,863,450.00	3.51
FEDERAL NATIONAL MORTGAGE ASSOCIATION	8/25/2025	2,354,926.00	2,295,548.40	3.51
FEDERAL NATIONAL MORTGAGE ASSOCIATION	11/27/2023	1,797,948.00	1,729,980.00	3.49
FEDERAL NATIONAL MORTGAGE ASSOCIATION	1/19/2023	4,411,710.00	4,483,980.00	3.31
FEDERAL NATIONAL MORTGAGE ASSOCIATION	1/19/2023	2,233,875.00	2,291,812.00	3.31
FEDERAL HOME LOAN MORTGAGE CORP	6/26/2023	7.463.143.80	7.289.716.35	3.49
FEDERAL HOME LOAN MORTGAGE CORP	6/26/2023	593,262.60	579,476.45	3.51
FEDERAL HOME LOAN MORTGAGE CORP	8/24/2023	8,001,840.00	7,741,360.00	3.64
FEDERAL HOME LOAN MORTGAGE CORP	8/24/2023	3,006,929.80	2,912,686.70	3.64
FEDERAL HOME LOAN MORTGAGE CORP	9/8/2023	5,098,317.00	4,928,283.00	3.64
FEDERAL HOME LOAN MORTGAGE CORP	9/8/2023	3,001,860.00	2,898,990.00	3.64
FEDERAL HOME LOAN MORTGAGE CORP	9/8/2023	2,550,465.66	2,464,141.50	3.64
FEDERAL HOME LOAN MORTGAGE CORP	9/8/2023	2 725 497 61	2 633 249 25	3.64
FEDERAL HOME LOAN MORTGAGE CORP	10/16/2023	6,376,128.00	6,162,496.00	3.52
FEDERAL HOME LOAN MORTGAGE CORP	10/16/2023	1,549,199.85	1,497,293.95	3.52
FEDERAL HOME LOAN MORTGAGE CORP	10/16/2023	1,991,720.00	1,925,780.00	3.52
FEDERAL HOME LOAN MORTGAGE CORP	11/6/2023	4,705,761.00	4,532,433.00	3.54
FEDERAL HOME LOAN MORTGAGE CORP	11/6/2023	5,709,856.50	5,499,544.50	3.54
FEDERAL HOME LOAN MORTGAGE CORP	11/6/2023	2,482,763.50	2,391,315.50	3.54
FEDERAL HOME LOAN MORTGAGE CORP	12/4/2023	4,820,223.25	4,628,815.50	3.58
SUB-	TOTAL	237,658,275.67	230,443,736.09	
MEDIUM TERM NOTES				
ADOBE INC	2/1/2023	314,568,45	312.678.45	3.49
ADOBE INC	2/1/2023	134,815.05	134,005.05	3.49
AMAZON.COM INC	6/3/2023	249,650.00	244,212.50	3.53
AMAZON.COM INC	5/12/2024	3,265,225.80	3,101,104.50	3.61
AMAZON.COM INC	5/12/2024	888,700.60	844,031.50	3.61
AMAZON.COM INC	4/13/2025	1,772,177.75	1,748,428.25	3.60
AMAZON.COM INC	4/13/2025	364,419.65	359,535.95	3.60
AMERICAN EXPRESS CO	7/30/2024	362,530.00	340,406.50	4.00
AMERICAN EXPRESS CO	7/30/2024	492,005.00	461,980.25	4.00
AMERICAN EXPRESS CO	7/30/2024	129,475.00	121,573.75	4.00
AMERICAN EXPRESS CO	3/4/2025	4,299,570.00	4,154,675.00	3.72 4.18
AMERICAN EXPRESS CO	3/4/2025	498,315.00	477,280.00	4.18
AMERICAN EXPRESS CO	3/4/2025	104,893.95	100,228.80	4.18
AMERICAN EXPRESS CO	3/4/2025	99,663.00 969,903,00	95,456.00 958 932 30	4.18 4.09
AMERICAN EXPRESS CO	5/3/2024	349,965.00	346,006.50	4.09
AMERICAN EXPRESS CO	8/1/2025	1,808,190.00	1,793,510.90	4.28
AMERICAN EXPRESS CO	8/1/2025	644,355.00	639,124.05	4.28
AMERICAN HONDA FINANCE CORP AMERICAN HONDA FINANCE CORP	1/12/2024 8/9/2024	1,585,215.00	1,494,900.00 937 896 95	3.81
AMERICAN HONDA FINANCE CORP	8/9/2024	988,730.00	942,610.00	3.85
AMERICAN HONDA FINANCE CORP	8/9/2024	404,732.70	381,757.05	3.85
AMERICAN HONDA FINANCE CORP	1/13/2025	724,427.25	685,915.25	3.91
APPLE INC	5/3/2023	1,977.040.00	1,986.220.00	3.91
APPLE INC	5/11/2023	49,864.00	49,089.00	3.43

APPLE INC	5/11/2023	200 184 00	294 534 00	YIELD 3.43
ASTRAZENECA FINANCE LLC	5/28/2024	1,339,879.40	1,268,470.80	3.90
ASTRAZENECA FINANCE LLC	5/28/2024	584,947.35	553,772.70	3.90
TRUIST FINANCIAL CORP	8/1/2024	4,454,730.00	4,381,605.00	3.94
BMW US CAPITAL LLC	8/12/2024	619,944.20	583,500.60	3.92
BMW US CAPITAL LLC	8/12/2024	254,977.05	239,988.15	3.92
BMW US CAPITAL LLC	4/1/2025	194,816.70	190,639.80	4.17
BAKER HUGHES HOLDINGS LLC	12/15/2023	380,000.00	368,151.60	3.73
BAKER HUGHES HOLDINGS LLC BANK OF AMERICA CORP	12/15/2023	3.034.740.00	135,634.80	3.73
BANK OF AMERICA CORP	12/6/2025	855,000.00	797,851.80	4.15
BANK OF AMERICA CORP	12/6/2025	1,500,000.00	1,399,740.00	4.15
BANK OF AMERICA CORP	2/4/2025	3,845,000.00	3,695,737.10	3.99
BANK OF AMERICA CORP	2/4/2025	1,500,000.00	1,441,770.00	3.99
BANK OF AMERICA CORP BANK OF NEW YORK MELLON CORP	2/4/2025 4/28/2023	300,000.00 947 355 50	288,354.00 910 455 00	3.99
BANK OF NEW YORK MELLON CORP	1/27/2023	14,989.50	14,917.80	3.21
BANK OF NEW YORK MELLON CORP	4/24/2025	890,619.00	819,070.20	3.95
BANK OF NEW YORK MELLON CORP	10/25/2024	1,334,132.25	1,252,777.35	3.95
BANK OF NEW YORK MELLON CORP	10/25/2024	992,360.00	938,410.00	
BANK OF NEW YORK MELLON CORP BANK OF NEW YORK MELLON CORP	10/25/2024	599,610.00	563,046.00	4 03
BANK OF NEW YORK MELLON CORP	4/25/2025	1,229,827.80	1,212,989.10	3.90
BANK OF NEW YORK MELLON CORP	4/25/2025	2,124,702.50	2,095,611.25	3.90
BRIGHTHOUSE FINANCIAL GLOBAL FUNDING	1/13/2025	1,627,913.60	1,509,836.40	5.09
BRIGHTHOUSE FINANCIAL GLOBAL FUNDING	1/13/2025	544,302.40	504,822.60	5.09
BRISTOL-MYERS SQUIBB CO	11/13/2023	1,325,000.00	1,280,771.50	3.40
BURLINGTON NORTHERN SANTA FE LLC	4/1/2025	527,548.70	481,454.40	3.71
BURLINGTON NORTHERN SANTA FE LLC	4/1/2025	226,092.30	206,337.60	3.71
CAPITAL ONE FINANCIAL CORP CATERPILLAR FINANCIAL SERVICES CORP	7/7/2023	784.560.40	765.861.70	3.90
CATERPILLAR FINANCIAL SERVICES CORP	7/7/2023	339,809.60	331,710.80	3.59
CATERPILLAR FINANCIAL SERVICES CORP	5/17/2024	5,193,032.00 1 448 057 00	4,916,808.00	3.77
CATERPILLAR FINANCIAL SERVICES CORP	5/17/2024	624,162.50	590,962.50	3.77
CATERPILLAR FINANCIAL SERVICES CORP	9/13/2024	1,168,408.80	1,099,121.40	3.72
CATERPILLAR FINANCIAL SERVICES CORP	9/13/2024 1/10/2024	474,354.00	446,224.50	3.72
CATERPILLAR FINANCIAL SERVICES CORP	1/10/2024	334,946.40	322,896.45	3.70
CHEVRON CORP	5/11/2023	265,000.00	260,513.55	3.63
CINTAS NO 2 CORP	5/1/2025	769,830.60	757,618.40	4.09
CINTAS NO 2 CORP	5/1/2025	264,941.70	260,738.80	4.09
CITIGROUP INC	11/3/2025	160,000.00	148,769.60 241 750 60	
CITIGROUP INC	1/25/2026	1,040,000.00	977,194.40	4.21
CITIGROUP INC	1/25/2026	395,000.00	371,145.95	4.21
CITIGROUP GLOBAL MARKETS HOLDINGS INC	6/7/2024	600,000.00	565,110.00	4.20
CNO GLOBAL FUNDING	1/6/2025	519,667.20	484,728.40	4.74
COLGATE-PALMOLIVE CO	1/6/2025 8/15/2025	174,888.00	163,129.75	4.74
COLGATE-PALMOLIVE CO	8/15/2025	199,816.00	196,638.00	3.70
COMCAST CORP	10/15/2025	4,042,256.85	3,609,035.25	4.01
COMERICA INC	7/31/2023	636,006.00	599,154.00	3.86
PNC BANK NATIONAL ASSOCIATION	4/10/2025	4,562,820.00	4,450,365.00	4.33
CONSUMERS ENERGY CO	6/1/2023	409,860.60	398,868.50	4.06
COOPERATIEVE RABOBANK UA (NEW YORK BRANCH)	1/12/2024	4,332,008.85	4,129,651.05	3.98
COOPERATIEVE RABOBANK UA (NEW YORK BRANCH)	1/10/2025	1,520,333.50	1,432,020.75	4.11
COOPERATIEVE RABOBANK UA (NEW YORK BRANCH)	8/22/2024	1,329,388.20	1,325,079.00	4.11
COOPERATIEVE RABOBANK UA (NEW YORK BRANCH)	8/22/2024	354,836.70	353,686.50	4.07
JOHN DEERE CAPITAL CORP	7/5/2023	279,770.40	273,344.40	3.58
JOHN DEERE CAPITAL CORP	1/17/2024	3,512,504.35	3,365,296.15	3.65
JOHN DEERE CAPITAL CORP	1/17/2024	554,605.95	531,362.55	3.65
JOHN DEERE CAPITAL CORP	9/10/2024	404.736.75	381,558.60	3.65
JOHN DEERE CAPITAL CORP	9/10/2024	129,915.50	122,475.60	3.61
JOHN DEERE CAPITAL CORP	1/10/2025	774,635.75	732,018.50	3.73
JOHN DEERE CAPITAL CORP	1/10/2025	204,903.65	193,630.70	3.73
JOHN DEERE CAPITAL CORP	3/7/2025	194,916.15	187,147.35	3.82
JOHN DEERE CAPITAL CORP	6/6/2025	469.891.90	465.337.60	3.78
JOHN DEERE CAPITAL CORP	6/6/2025	169,960.90	168,313.60	3.78
ENTERGY LOUISIANA LLC	11/17/2023	633,303.84 271 951 04	612,307.23 263.108.32	3.40
ENTERGY LOUISIANA LLC	10/1/2024	858,710.00	808,348.40	3.98
ENTERGY LOUISIANA LLC	10/1/2024	344,482.50	324,279.30	3.98
EQUITABLE FINANCIAL LIFE GLOBAL FUNDING	8/12/2024	719,935.20	670,788.00	4.51
F&G GLOBAL FUNDING	9/20/2024	2,479,479.20	2,283,410.40	5.01
F&G GLOBAL FUNDING	9/20/2024	804,830.95	741,187.65	5.01
F&G GLOBAL FUNDING	9/20/2024	324,931.75	299,237.25	5.01
GA GLOBAL FUNDING TRUST	4/8/2024	2,886,990.00	2,818,440.00	4.97
GA GLOBAL FUNDING TRUST	9/13/2024	444,016.55	409,355.50	4.99
GOLDMAN SACHS GROUP INC	3/3/2024	308,599.20	279,907.60	4.02
GOLDMAN SACHS GROUP INC	3/3/2024	132,256.80	119,960.40 699 973 00	4.02
GOLDMAN SACHS GROUP INC	12/6/2023	265,000.00	255,852.20	4.04
GOLDMAN SACHS GROUP INC	1/24/2025	1,000,000.00	960,960.00	3.99
GOLDIVIAN SACHS GROUP INC	1/24/2025	325,000.00	312.312.00	3.99
HSBC USA INC	5/24/2024	2,634,894.60	2,618,162.35	4.13
HOME DEPOT INC	5/24/2024 2/15/2024	909,963.60	904,185.10 5.873 888 20	4.13 3.58
HOME DEPOT INC	4/15/2025	274,518.75	268,749.25	3.62
HOME DEPOT INC	4/15/2025	94,833.75	92,840.65	3.62
HORMEL FOODS CORP	6/3/2024	869,598.00	855,414.00	3.59
HORMEL FOODS CORP	6/3/2024	304,359.30	299,394.90	3.59
INTERCONTINENTAL EXCHANGE INC INTERCONTINENTAL EXCHANGE INC	5/23/2025 5/23/2025	2,497,250.00 854,059.50	2,477,125.00 847,176.75	4.01 4.01

YIELD

DESCRIPTION	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
INTERCONTINENTAL EXCHANGE INC	5/23/2025	309,659.00	307,163.50	4.01
INTERNATIONAL BUSINESS MACHINES CORP	2/12/2024	720,041.50	653,349.40	3.80
INTERNATIONAL BUSINESS MACHINES CORP	2/12/2024	307,804.00	279,294.40	3.80
INTERNATIONAL BUSINESS MACHINES CORP	7/27/2025	2,000,000.00	1,996,480.00	4.06
INTERNATIONAL BUSINESS MACHINES CORP	7/27/2025	600,000.00	598,944.00	4.06
JPMORGAN CHASE & CO	7/15/2025	3,225,737.10	2,932,512.45	4.18
JACKSON NATIONAL LIFE GLOBAL FUNDING	1/12/2025	1,659,717.80	1,552,398.80	4.68
JACKSON NATIONAL LIFE GLOBAL FUNDING	1/12/2025	499,915.00	467,590.00	4.68
JACKSON NATIONAL LIFE GLOBAL FUNDING	1/12/2025	169,971.10	158,980.60	4.68
KEYBANK NA	3/7/2023	101,937.64	97,749.12	3.88
KEYBANK NA	3/7/2023	311,595.00	299,232.00	3.88
KEYBANK NA	3/7/2023	150,524.50	144,628.80	3.88
KEYBANK NA	3/7/2023	821,620.13	784,985.28	3.88
KEYBANK NA	3/7/2023	260,045.00	249,360.00	3.88
KEYBANK NA	8/8/2025	969,728.40	962,443.70	4.43
KEYBANK NA	8/8/2025	349,902.00	347,273.50	4.43
MASSMUTUAL GLOBAL FUNDING II	6/9/2023	3,521,432.45	3,436,967.00	3.79
MASSMUTUAL GLOBAL FUNDING II	6/9/2023	1,502,565.00	1,466,700.00	3.79
MASSMUTUAL GLOBAL FUNDING II	8/26/2025	889,083.30	887,623.70	4.25
MASSMUTUAL GLOBAL FUNDING II	8/26/2025	319,670.40	319,145.60	4.25
MET TOWER GLOBAL FUNDING	6/13/2025	1,448,579.00	1,426,829.00	4.31
MET TOWER GLOBAL FUNDING	6/13/2025	524,485.50	516,610.50	4.31
METROPOLITAN LIFE GLOBAL FUNDING I	9/27/2024	1,629,804.40	1,517,611.50	4.21
METROPOLITAN LIFE GLOBAL FUNDING I	9/27/2024	1,978,300.00	1,862,100.00	4.21
METROPOLITAN LIFE GLOBAL FUNDING I METROPOLITAN LIFE GLOBAL FUNDING I	9/27/2024	1,089,869.20 439.947.20	1,014,844.50	4.21 4.21
METROPOLITAN LIFE GLOBAL FUNDING I	3/21/2025	579,483.80	559,027.20	4.31
MONONGAHELA POWER CO	4/15/2024	160,784,00	158,609,60	
MONONGAHELA POWER CO MORGAN STANLEY	4/15/2024	110,743.60	109,044.10	4.66
MORGAN STANLEY NATIONAL ALISTRALIA BANK LTD (NEW YORK BRANCH)	2/25/2023	324,300.40	305,292.80	3.55
NATIONAL AUSTRALIA BANK LTD (NEW YORK BRANCH)	6/9/2025	670,000.00	659,735.60	4.09
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	2/8/2024	244,830.95	233,462.95	3.75
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	2/7/2025	399,988.00	381,208.00	3.92
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	2/7/2025	169,994.90	162,013.40	3.92
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	6/15/2025	889,759.70	875,270.50	4.08
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	6/15/2025	319,913.60 344,906.85	314,704.00 339,290.25	4.08
NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	6/15/2025	109,970.30	108,179.50	4.08
NATIONAL SECURITIES CLEARING CORP	4/23/2023	3,162,024.90	3,119,708.85	
NESTLE HOLDINGS INC NESTLE HOLDINGS INC	9/14/2024 9/14/2024	2,210,000.00	2,077,311.60 855,363.60	3.69
NEW YORK LIFE GLOBAL FUNDING	8/27/2024	1,547,845.50	1,446,909.50	4.12
NEW YORK LIFE GLOBAL FUNDING	8/27/2024	624,131.25	583,431.25	4.12
NEW YORK LIFE GLOBAL FUNDING	10/29/2024	1,542,991.50	1,443,926.10	4.09
NEW YORK LIFE GLOBAL FUNDING	10/29/2024	619,194.00	579,439.60	4.09
NEW YORK LIFE GLOBAL FUNDING	1/14/2025	5,948,568.60	5,594,186.55	4.16
NEW YORK LIFE GLOBAL FUNDING	6/6/2024	5,135,836.60	5,062,745.80	4.04
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	3,188,077.20	3,181,939.80	4.22
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	200,962.00	200,122.00	4.22
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	837,120.90	835,509.35	4.22
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	412,070.50	410,250.10	4.22
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	201,002.00	200,122.00	4.22
NEXTERA ENERGY CAPITAL HOLDINGS INC	9/1/2024	300,762.00	300,183.00	4.22
NIKE INC	3/27/2025	44,938.80	43,544.70	3.73
NORTHWESTERN MUTUAL GLOBAL FUNDING	7/1/2025	5,003,298.30	4,978,073.10	4.20
OKLAHOMA GAS AND ELECTRIC CO	5/26/2023	430,000.00	420,140.10	3.74
OKLAHOMA GAS AND ELECTRIC CO	5/26/2023	190,000.00	185,643.30	3.74
PACCAR FINANCIAL CORP	9/26/2022	1,498,170.00	1,498,920.00	3.01
PACCAR FINANCIAL CORP	2/7/2023	2,274,886.25	2,259,507.25	3.49
PACCAR FINANCIAL CORP	8/11/2023	314,587.35	305,524.80	3.62
PACCAR FINANCIAL CORP	8/11/2023	134,823.15	130,939.20	3.62
PACCAR FINANCIAL CORP	2/2/2024	1,618,120.80	1,543,811.40	3.78
PACCAR FINANCIAL CORP	8/9/2024	684,630.10	643.002.65	3.81
PACCAR FINANCIAL CORP	8/9/2024	274,851.50	258,139.75	3.81
PACCAR FINANCIAL CORP	8/9/2024	764,586.90	718.097.85	3.81
PACCAR FINANCIAL CORP	8/9/2024	344,813.70	323,848.05	3.81
PACCAR FINANCIAL CORP	11/8/2024	1.544.907.30	1.451.573.85	3.81
PACCAR FINANCIAL CORP PACCAR FINANCIAL CORP	4/7/2025	1,889,508.60 4 823 745 50	1,843,033.50 4 705 098 75	3.86
PACCAR FINANCIAL CORP PACCAR FINANCIAL CORP	4/7/2025	854,777.70 619 838 80	833,753.25 604 593 00	3.86
PACCAR FINANCIAL CORP PACCAR FINANCIAL CORP	4/7/2025	1,499,610.00 474 876 50	1,462,725.00 463 196 25	3.86
PACIFIC LIFE GLOBAL FUNDING II	9/23/2023	2,022,468.75	1,956,453.75	3.78
PAYPAL HOLDINGS INC	10/1/2024		1,654,729,00	3.74
PRECISION CASTPARTS CORP	1/15/2023	1,370,472.00	1,356,232.80	3.24
PRECISION CASTPARTS CORP	1/15/2023	292 233 00	289 196 70	
PRICOA GLOBAL FUNDING I	12/6/2024	2,897,013.00	2,708,049.00	4.25
PRICOA GLOBAL FUNDING I PRICOA GLOBAL FUNDING I	12/6/2024	449,536.50	420,214.50	4.25
PRICOA GLOBAL FUNDING I PRINCIPAL LIFE GLOBAL FUNDING II	8/28/2025	149,908.50	149,386.50 742,216,00	4.35
PRINCIPAL LIFE GLOBAL FUNDING II	8/23/2024	324,798.50	301,525.25	4.61
ROCHE HOLDINGS INC	3/10/2025	4,640,000.00	4,457,555.20	3.78
ROCKWELL AUTOMATION INC	8/15/2023	314,848.80	305,310.60	3.65
ROYAL BANK OF CANADA	4/14/2025	2,524,065.75	2,478,565.25	4.13
SALESFORCE INC	7/15/2024 7/15/2024	349,821.50	331,439.50	3.58
CHARLES SCHWAB CORP	3/18/2024	2,333,832.50	2,236,369.60	3.58
CHARLES SCHWAB CORP	3/18/2024	2,006,720.00 1,229,385.00	1,915,520.00	3.58
CHARLES SCHWAB CORP	3/18/2024		1,178,044.80	3.58
CHARLES SCHWAB CORP	3/18/2024	524,737.50	502,824.00	3.58
CHARLES SCHWAB CORP	3/18/2024	889,555.00	852,406.40	
CHARLES SCHWAB CORP	3/18/2024	389,805.00	373,526.40	3.58
SECURITY BENEFIT GLOBAL FUNDING	5/17/2024	3,128,810.60	2,942,106.10	4.95
SOUTHERN CALIFORNIA EDISON CO	4/1/2024	4,014,000.00	3,806,000.00	4.30
SOUTHERN CALIFORNIA GAS CO	9/15/2024	919,545.78	916,758.52	3.66
SOUTHERN CALIFORNIA GAS CO	9/15/2024	2,785,336.95	2,777,006.10	3.66
STATE STREET CORP	3/30/2026	386,433.75	360,502.50	4.50
STATE STREET CORP	3/30/2026	1,020,130.00	961,340.00	4.50
STATE STREET CORP	3/30/2026	510,065.00	480,670.00	4.50
STATE STREET CORP	2/6/2026	1,625,000.00	1,529,823.75	3.85
STATE STREET CORP		855,000.00	804,922.65	3.85
STATE STREET CORP	2/6/2026	285,000.00	268,307.55	3.85
STATE STREET CORP		745.000.00	701.365.35	3.85
STATE STREET CORP	2/6/2026	255,000.00	240,064.65	3.85
TARGET CORP	7/1/2024	425,056.00	398,836.00	3.66
TORONTO-DOMINION BANK	6/12/2024	3,171,900.00	2,929,950.00	4.02
TOYOTA MOTOR CREDIT CORP	1/11/2024	1,249,925.00	1,196,937.50	3.68
TOYOTA MOTOR CREDIT CORP	1/11/2024	649,961.00	622,407.50	3.68
TOYOTA MOTOR CREDIT CORP	4/6/2023	1,798,542.00	1,769,742.00	3.06
TOYOTA MOTOR CREDIT CORP	4/6/2023	409,667.90	403,107.90	3.26
TOYOTA MOTOR CREDIT CORP	4/6/2023	174,858.25	172,058.25	3.26
TOYOTA MOTOR CREDIT CORP	6/18/2024	3,086,322.90	2,920,482.60	3.68
TOYOTA MOTOR CREDIT CORP	1/13/2025	973,693,50	921 882 00	
USAA CAPITAL CORP	5/1/2025	1,415,356.60	1,396,456.40	4.04
UNILEVER CAPITAL CORP	5/1/2025	488,397.70	481,875.80	4.04
	8/12/2024	485,000.00	457,078.55	3.72
UNILEVER CAPITAL CORP	8/12/2024	220,000.00	207,334.60	3.72
US BANCORP	2/5/2024	2.107.940 00	1.990.260 00	3.73
	7/30/2024	2,662,075.00	2,439,525.00	3.72
UNITEDHEALTH GROUP INC	5/15/2024	1,188,762.40	1,131,749.50	3.53 3.53
UNITEDHEALTH GROUP INC	5/15/2024	514,464.40	489,790.75	3.53
UNITEDHEALTH GROUP INC	5/15/2024	963,996.40	917,763.25	3.53
UNITEDHEALTH GROUP INC	5/15/2024	419,563.20	399,441.00	3.53
WALMART INC	6/26/2023	3.083.010 00	3.007.590.00	3.05
WALMART INC	6/26/2023	2,056,460.00	2,005,060.00	3.05
WELLS FARGO & CO	8/15/2026	360,000.00	993,220.00 357,559.20	4.73 4.73
SUB-1	TOTAL 5	321,567,997.53	308,603,999.62	
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	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
ALLYA 2022-1 A3	11/16/2026	1,944,623.45	1,926,444.70	3.80
ALLYA 2022-1 A3	11/16/2026	714,861.58	708,178.90	3.80
ACAR 221 B	9/14/2026	499,988.80	480,405.00	4.20
AMXCA 2022-2 A AMXCA 2022-2 A	5/17/2027 5/17/2027	4,409,024.51 3,124,898.44	4,357,212.30 3,112,294.50	3.88 3.88
AMXCA 2022-2 A	5/17/2027	2,749,391.70	2,717,082.50	3.88
AMACA 2022-2 A AMCAR 2021-3 A3	8/18/2026	949,789.86	913,197.00	3.00
BMWLT 2021-1 A3 BMWLT 2021-1 A3	1/25/2024	418,255.89	413,638.91	3.95
BMWLT 2022-1 A3	3/25/2025	1,589,762.30	1,539,978.60	4.26
BMWOT 2022-A A3 BMWOT 2022-A A3	8/25/2026 8/25/2026	1,699,911.60 1,004,947.74	1,679,243.00 992,728.95	3.83 3.83
BMWOT 2022-A A3	8/25/2026	344,982.06	340,787.55	3.83
CAPITAL ONE MULTI TR A B S SER 2021 3 CL A 11/16/2	11/16/2026	2,149,703.73	2,021,967.50	3.89
CAPITAL ONE MULTI TR A B S SER 2021 3 CL A 11/16/2 COMET 2022-1 A	11/16/2026 3/17/2025	624,913.88 3 450 123 12	587,781.25 3 412 600 16	3.89 3.93
COMET 2022-1 A	3/17/2025	2,999,773.80	2,920,080.00	3.93
COMET 2022-1 A COMET 2022-2 A	5/15/2025	3,799,392.76	3,764,128.00	3.93
COMET 2022-2 A	5/15/2025	1,049,832.21	1,040,088.00	3.88
COPAR 2019-1 A3	11/15/2023	7,209.66	7,209.03	3.06
COPAR 2019-1 A3 COPAR 2022-1 A3	11/15/2023 4/15/2027	3,604.83 1.089.761.84	3,604.52 1.067.175.40	3.06 4.08
COPAR 2022-1 A3	4/15/2027	379,916.97	372,042.80	4.08
COPAR 2021-1 A3 COPAR 2021-1 A3	9/15/2026	359,993.20	341,992.80	3.61
CARMX 2021-2 A3	2/17/2026	914,802.82	886,909.50	3.18
CARMX 2020-3 B	3/16/2026	737,328.52	694,814.00	3.36
CARMX 2020-3 B CARMX 2020-2 A4	3/16/2026 5/15/2025	121,012.50 1,492,593.75	114,216.00 1,422,305.00	3.36 3.65
CARMX 2019-4 B	7/15/2025	1,758,871.25	1,657,636.48	3.58
CARMX 2020-1 A3 CARMX 2020-1 A3	12/16/2024	119,422.52	116,665.25	3.48
CARMX 2020-1 A4 CARMX 2020-4 A3	6/16/2025 8/15/2025	4,262,480.39	3,997,033.20	3.68
CARMX 2020-4 A3	8/15/2025	128,175.79	125,330.95	3.27
CARMX 2021-1 A3 CARMX 2021-1 A3	12/15/2025 12/15/2025	426,677.93 182,861.97	415,444.52 178,047.65	3.23
CARMX 2021-3 A3	6/15/2026	2,899,522.95	2,781,970.00	3.37
CARMX 2021-3 A3	6/15/2026	1,759,710.48	1,688,368.00	3.37
CARMX 2021-3 A3 CARMX 2022-2 A3	6/15/2026 2/16/2027	764,874.16	733,864.50	3.37 3.82
CARMX 2022-2 A3	2/16/2027	494,924.71	491,747.85	3.82
CARMX 2022-3 A3 CARMX 2022-3 A3	8/15/2025 8/15/2025	1,879,955.63 649,984.66	1,871,013.60 646,893.00	4.19
CRVNA 2021-P1 A3 DCENT 2019-3 A	12/10/2025	2,452,928.25	2,401,173.12	3.91
DCENT 2019-3 A	10/15/2024	304,934.49	304,603.50	2.87
DCENT 2021-1 A DCENT 2021-1 A	9/16/2024 9/16/2024	944,797.68 389.916.50	885,739.05 365.543.10	3.80 3.80
DCENT 2022-2 A	5/17/2027	1,959,840.65	1,932,030.80	3.90
DCENT 2022-2 A DCENT 2022-3 A	7/15/2027	2,249,720.78	2,228,175.00	3.90
DCENT 2022-3 A DRIVE 2021-3 A3	7/15/2027	779,903.20	772,434.00	3.95
DRIVE 2021-3 B	5/15/2026	1,249,989.13	1,210,212.50	3.55
DRIVE 2021-2 A3 EART 2021-3 A3	3/17/2025 2/18/2025	1,081,052.49 770,068.53	1,077,617.52 767,150.17	2.23
FORDO 2022-A A3	6/15/2026	769,908.52	737,883.30	3.77
FORDF 2017-3 A FORDF 2019-2 B	4/15/2024	1,831,369.92	1,670,892.30	4.76
FORDF 2019-4 A FORDF 2019-4 A	9/15/2024 9/15/2024	4,357,395.70	4,091,636.70	4.14 4.14
FORDF 2020-1 A1	9/15/2025	1,007,617.19	966,030.00	4.07
FORDF 2020-1 A1 FORDF 2020-1 A1	9/15/2025 9/15/2025	1,005,625.00	173,885.40 966,030.00	4.07
FORDO 2021-A A3	8/15/2025	1,120,299.24	1,090,755.29	3.59
FORDO 2021-A A3	8/15/2025	255,645.08	248,768.75	3.59
FORDO 2022-B FORDO 2022-B	9/15/2026 9/15/2026	654,964.56 189,989.72	653,644.15 189,606.70	3.87 3.87
GMCAR 2021-4 A3	9/16/2026	1,074,972.59	1,021,099.50	3.67
GMCAR 2021-4 A3 GMCAR 2021-4 A3	9/16/2026	299,992.35	284,958.00	3.67
GMCAR 2022-2 A3 GMCAR 2022-2 A3	2/16/2027 2/16/2027	899,811.90	886,221.00 305 253 90	3.83
GMCAR 2020-3 A3	4/16/2025	404,784.31	397,293.60	3.16
GMCAR 2020-3 A3 GMCAR 2020-4 A3	8/18/2025	236,205.33	230,949.51	3.16
GMCAR 2020-4 A3	8/18/2025	104,090.49	101,774.36	3.28
GMALT 2021-1 A3	2/20/2024	570,039.72	565,206.65	3.80
GMALT 2021-1 A3 GMALT 2022-1 A3	2/20/2024 3/20/2025	249,156.43 3.329.971.36	247,043.97 3.236.393.70	3.80 4.16
GMCAR 2022-3 A3	4/16/2027	1,149,992.07	1,143,180.50	3.91
GMCAR 2022-3 A3 GMCAR 2022-1 A3	11/16/2026	1,049,908.75	1,007,013.00	3.91
GMCAR 2022-1 A3 GMCAR 2022-1 A3	11/16/2026	804,930.05 274 976 10	772,043.30	3.52
GALC 212 A3	7/15/2025	2,299,705.37	2,182,010.00	4.45
GALC 212 A3 HDMOT 2020-A A3	7/15/2025 10/15/2024	899,884.71 133,130.87	853,830.00 132,676.54	4.45 3.07
HDMOT 2020-A A3	10/15/2024	57,835.54	57,638.17	3.07
HDMOT 2022-A A3	2/16/2027	639,893.44	628,083.20	3.97
HAROT 2020-1 A3 HAROT 2022-1 A3	4/22/2024 5/15/2026	1,211,629.78 1,084.836.82	1,202,499.57 1,045.061.15	3.38 3.82
HAROT 2021-3 A3	11/18/2025	5,399,921.16	5,166,126.00	3.68
HAROT 2021-4 A3 HAROT 2021-4 A3	1/21/2026	959,797.63	914,640.00	3.86
HAROT 2021-4 A3 HAROT 2019-3 A3	1/21/2026 8/15/2023	354,925.17	338,226.25 307 534 27	3.86
HAROT 2022-2 A3	7/20/2026	1,614,903.75	1,604,567.10	4.04
HART 2019-B C HALST 2021-A A3	6/15/2026 1/16/2024	1,557,011.72 268,176.18	1,463,895.00 265,980.83	4.08 3.64
HALST 2021-A A3	1/16/2024	116,598.34	115,643.84	3.64
HYUNDAI AUTO LEASE TR 2022A	1/15/2025	2,099,953.59	2,030,091.00	4.11
HYUNDAI AUTO LEASE TR 2022A HART 2022-A A3	12/15/2025 10/15/2026	1,999,625.40 2,014.922.42	1,916,020.00 1,944.736.95	1.38 4.02
HART 2022-A A3	10/15/2026	684,973.63	661,114.05	4.02
HART 2022-B A3	11/16/2026	399,999.84	398,316.00	3.93

DESCRIPTION	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
HART 2021-A A3 HART 2021-A A3	9/15/2025	604.936.36	585.761.00	3.61
HART 2021-A A3	9/15/2025	264,972.12	256,573.00	3.61
HALST 21C A3	8/15/2024	1,209,890.49	1,170,360.40	4.21
HART 2021-B A3	1/15/2026	3,614,202.17	3,470,544.60	3.78
HART 2021-C A3	5/15/2026	679,848.22	648,645.20	3.66
HART 2021-C A3	5/15/2026	274,938.62	262,319.75	3.66
JDOT 2019-B A3	9/15/2026	1,994,558.71	1,934,132.55	3.96
JDOT 2020 A3	8/15/2024	853,681.13	845,554.53	3.53
KCOT 221 A2	4/15/2025	659,977.23	648,780.00	5.19
KCOT 221 A2	4/15/2025	1 849 735 45	1 774 168 50	5.19 4.71
KCOT 221 A3	10/15/2026	649,907.05	623,356.50	4.71
KCOT 222 A3	12/15/2026	1,764,676.48	1,754,162.90	4.45
KCOT 222 A3	12/15/2026	609,888.19	606,254.60	4.45
KCOT 2021-1 A3	8/15/2025	274.943.73	261.112.50	4.63
KCOT 212 A3	11/17/2025	1,064,959.85	1,001,589.90	4.61
KCOT 212 A3	11/17/2025	464,982.47	437,313.90	4.61
MCCT 211 A MBALT 2020-B A3	11/21/2025	4,741,015.63	4,716,700.00	3.96
MBALT 2020-B A3	11/15/2023	48,589.21	48,314.70	3.29
MBALT 2021-B A3	11/15/2024	1,989,849.76	1,927,275.20	5.11
MBART 2020-1 A3	2/18/2025	224,313.95	221,018.09	3.06
MMAF 20B A3	8/14/2025	3,469,950.38	3,327,938.20	4.44
MMAF 20B A3	8/14/2025	1,229,246.88	1,189,234.40	4.44
MMAF 20A A2	4/9/2024	621,902.86	613,458.50	4.07
NAROT 2020-B A3 NAROT 2020-B A3	7/15/2024	139,573,09	138 089 02	3.12
NAROT 2019-C A3	7/15/2024	774,060.82	771,283.96	2.98
NAROT 2019-C A3	7/15/2024	165,028.20	164,436.17	2.98
NAROT 2019-C A3 PESEC 20E A	10/15/2024	70,726.37	70,472.65	2.98
PFSFC 20E A	10/15/2025	1,007,421.87	961,890.00	4.52
SDART 2021-4 A3	8/15/2025	749,931.07	743,940.00	2.61
SDART 2021-4 B SPT 2022-4 A3	6/15/2026	249,972.17	243,002.50	3.48
SDART 2021-3 A3	3/17/2025	520.562.48	519.348.09	1.92
SDART 2021-3 B	12/15/2025	1,449,739.00	1,429,772.50	2.74
TAOT 2022-C A3	4/15/2027	644,892.22	640,523.70	4.07
TAOT 2022-C A3	4/15/2027	209,964.91	208,542.60	4.07
TAOT 2020-D A3	1/15/2025	307,730.61	302,149.27	3.53
TAOT 2022-B A3	9/15/2026	1,039,975.66	1,021,737.60	3.82
TAOT 2022-B A3	9/15/2026	359,991.58	353,678.40	3.82
TAOT 2021-D A3	4/15/2026	364 992 23	347 655 20	3.72
TLOT 2022-A A3	2/20/2025	1,217,382.81	1,212,287.50	4.01
TAOT 2019-C A3	9/15/2023	110,859.72	110,761.97	2.79
TAOT 2019-C A3	9/15/2023	47,635.04	47,593.03	2.79
TAOT 2019-C A3	9/15/2023	0.00	0.00	0.59
TLOT 21B A3	10/21/2024	559,992.44	540,920.80	4.47
TLOT 21B A3	10/21/2024	239,996.76	231,823.20	4.47
UART 211 A3	6/16/2025	255.690.86	253.281.73	2.98
VZOT 2020-B A	2/20/2025	559,882.40	552,316.80	3.23
VZOT 2020-B A	2/20/2025	239,949.60	236,707.20	3.23
VZOT 2019-C A1A	4/22/2024	220,690.55	220,124.90	3.17
VZOT 2020-A A1A	7/22/2024	282,437.48	281,120.35	3.42
VZOT 2020-A A1A	7/22/2024	121,044.63	120,480.15	3.42
VWALT 2022-A A3	7/21/2025	549,956.22	545,209.50	3.99
VALET 2022-A A3	6/22/2026	1.139.955.31	1.092.028.80	3.99
VALET 2021-1 A3	6/22/2026	239,990.59	229,900.80	3.74
WLAKE 2021-3 A3	6/16/2025	2,849,950.41	2,766,124.50	3.83
WOLS 2021-3 A3	8/15/2024	2 099,962.60	2 029 692 00	3.63 4.32
WOLS 2021-A A3	8/15/2024	899,893.26	869,868.00	4.32
WOART 2021-D A3	10/15/2026	1,069,854.27	1,020,822.80	3.59
WOART 2021-D A3 WOART 2020-B A3	5/15/2025	434,940.75 430.871.86	415,007.40 423,403,57	3.59
WOART 2020-B A3	5/15/2025	184,659.37	181,458.68	3.36
FH G12952	12/1/2022	1,743.50	1,682.39	3.30
ENR 2011-74 UY	3/25/2026	624,172.71	614,550.64	3.94
FNA 2013-M7 A2	12/25/2022	168,205.61	165,318.18	3.50
FNA 2013-M7 A2	12/25/2022	69,007.43	67,822.84	3.50
FNA 2016-M03 A2	2/25/2026	2,461,780.84	2,419,598.60	4.17
FHR 3806 L	2/15/2025	187.941.32	177.159.55	3.75
FHR 3806 L	2/15/2026	25,066.67	24,100.21	3.75
FHR 3806 L	2/15/2026	1,310,809.91	1,291,552.18	3.75
FHMS K-SMC A2	1/25/2023	2.030.198.44	2.028.820.80	3.56
FHMS K-SMC A2	1/25/2023	410,500.00	397,808.00	3.56
FHMS K-SMC A2	1/25/2023	1,175,160.15	1,173,533.60	3.56
FHMS K-026 A2 FHMS K-026 A2	11/25/2022	1,621,573.42	1,587,981.63	3.10
FHMS K-026 A2	11/25/2022	861,917.40	844,062.31	3.10
FHMS K-S01 A2	1/25/2023	84,572.47	86,358.37	3.60
FHMS K-034 A1	2/25/2023	42,510.54	42,652.28	2.57
FHR 4285 BA	12/15/2023	219,772.96	212,255.62	3.94
FHMS K-040 A2	9/25/2024	1,446,975.00	1,418,558.40	3.95
FHMS K-041 A1	8/25/2024	594,871.36	565,294.25	3.72
FHMS K-045 A2 FHMS K-045 A2	1/25/2025	1 225 397 44	1 216 419 08	3.83
FHMS K-046 A1	1/25/2025	279,272.96	265,515.40	3.55
FHMS K-046 A2	3/25/2025	1,985,078.12	1,966,680.00	3.84
FHMS K-PLB A	5/25/2025	2,156.328.13	1,940.020.00	3.88
FHMS K-PLB A	5/25/2025	2,640,039.06	2,425,025.00	3.88
FHMS K-047 A1	12/25/2024	0.01	0.01	0.33
FIMS K-049 A2 FHMS K-049 A2	7/25/2025	3,499,939.45	3,466,326.50	3.85
FHMS K-050 A1	1/25/2025	1,887,092.66	1,768,694.62	3.85
FHMS K-051 A2	9/25/2025	4,031,093.75	3,933,400.00	3.86
FHMS K-051 A2	9/25/2025	4,348,857.42	3,884,232.50	3.86
FHMS K-051 A2	9/25/2025	1,337,686.53	1,194,770.25	3.86
FHMS K-051 A2	9/25/2025	1,489,101.56	1,475,025.00	3.86
FHMS K-051 A2	9/25/2025	521,185.55	516,258.75	3.86
FIMS K-052 A2 FHMS K-052 A2	11/25/2025	985,992.19	881,640.00 230 206 00	3.81
FHMS K-053 A2	12/25/2025	2,471,191.41	2,438,325.00	3.78
FHMS K-053 A2	12/25/2025	889,628.91	877,797.00	3.78
FHMS K-S07 A2 FHMS K-062 A2	9/25/2025	489,921.88	483,355.00	3.85
	0, _0, _0			0.10

DESCRIPTION	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
FHMS K-726 A2	4/25/2024	2,791,914.17	2,774,365.31	3.34
FHMS K-066 A2	6/25/2027	521,185.55	509,465.25	3.79
FHMS K-BX1 A1 FHMS K-BX1 A2	9/25/2024 1/25/2026	606,172.91 744,257.81	597,403.28 732,457.50	3.77
FHMS K-J33 A1	12/25/2025	4,403.41	4,389.64	2.91
FHMS K-727 A2	7/25/2024	2,909,430.12	2,655,950.15	3.83
FHMS K-727 A2 FHMS K-728 A2	7/25/2024 8/25/2024	1,259,753.25 3,435,032.37	1,149,999.03 3,378,607.48	3.83 3.84
FHMS K-728 A2	8/25/2024	1,202,261.33	1,182,512.62	3.84
FHMS K-PUS A FHMS K-J27 A1	7/25/2023	46,900.95	45,799.85 12,220.06	3.57
FHMS K-J30 A1 FHMS K-J30 A1	1/27/2025	433,016.19 187 768 09	419,695.93 181 992 04	3.60 3.60
FN AM8730	7/1/2025	1,732,304.56	1,567,024.47	4.35
FN AN0429 FN AN0992	1/1/2025 2/1/2026	960,930.89 963,719.05	872,796.31 953,385.93	3.90 4.36
FNR 0338C MP	5/25/2023	32,738.40	31,527.82	4.03
FNR 0333J LB	5/25/2023	18,903.03	18,237.61	4.42
FNR 0364L HQ FHR 2756 KA	7/25/2023 2/15/2024	27,933.87 110,753.59	27,039.95 105,970.41	4.17 4.62
FN BM6007	5/1/2023	106,823.77	102,542.60	2.67
PACIFICORP	4/1/2024	1,147,911.60	1,137,457.80	3.74
SUB-TOTAL	<u>L</u>	273,599,741.56	265,211,364.66	
ANAHEIM CALLE HSG & PUB IMPT AUTH REV	10/1/2023	2 215 000 00	2 184 632 35	3 94
BAY AREA TOLL AUTH CALIF TOLL BRDG REV	4/1/2023	2,590,000.00	2,569,021.00	3.60
BAY AREA TOLL AUTH CALIF TOLL BRDG REV BAY AREA TOLL AUTH CALIF TOLL BRDG REV	4/1/2023 4/1/2023	1,110,000.00 550,000.00	1,101,009.00 545,391.00	3.60 3.70
BAY AREA TOLL AUTH CALIF TOLL BRDG REV CALIFORNIA FARTHOUAKE AUTH REV	4/1/2023 7/1/2023	240,000.00 260,000,00	237,988.80 254 259 20	3.70 4.20
CALIFORNIA EARTHQUAKE AUTH REV	7/1/2023	105,000.00	102,681.60	4.20
CALIFORNIA ST CALIFORNIA ST DEPT WTR RES CENT VY PROJ REV	12/1/2022	435,000.00	432,163.80	2.97
CALIFORNIA ST DEPT WTR RES CENT VY PROJ REV CALIFORNIA ST DEPT WTR RES CENT VY PROJ REV	12/1/2022	160,000.00	153,768.00	2.97
CALIFORNIA ST DEPT WTR RES CENT VY PROJ REV CALIFORNIA ST UNIV REV	12/1/2023 11/1/2023	70,000.00 760.000.00	67,273.50 731,484,80	3.63 3.79
CALIFORNIA ST UNIV REV	11/1/2023	330,000.00	317,618.40	3.79
CALIFORNIA ST UNIV REV	11/1/2023	300,000.00	288,744.00	3.79
CALIFORNIA STATEWIDE CMNTYS DEV AUTH REV CALIFORNIA STATEWIDE CMNTYS DEV AUTH REV	2/1/2023 2/1/2023	610,000.00 265.000.00	601,514.90 261.313.85	3.73 3.73
CONNECTICUT ST	7/1/2023	155,925.35	152,874.95	3.68
CONNECTICUT ST	6/15/2024	1,228,488.00	1,209,960.00	3.76
CONNECTICUT ST CORONA	6/15/2024 5/1/2024	440,208.20 1,080,000.00	433,569.00 1,020,697.20	3.76
CORONA EL CAJON CALIF	5/1/2024 4/1/2023	430,000.00 610.000.00	406,388.70 597.690.20	4.15 4.19
	4/1/2024	540,000.00	511,153.20	4.46
EL DORADO CALIF IRR DIST REV	3/1/2024	720,000.00	691,048.80	3.65
EL SEGUNDO CALIF PENSION OBLIG EL SEGUNDO CALIF PENSION OBLIG	7/1/2023 7/1/2023	970,000.00 415.000.00	939,997.90 402.164.05	4.19 4.19
FLORIDA ST BRD ADMIN FIN CORP REV	7/1/2025	715,000.00	662,890.80	4.00
GOLDEN ST TOB SECURITIZATION CORP CALIF TOB SETTLE	6/1/2025	1,510,000.00	1,403,363.80	4.00
GOLDEN ST TOB SECURITIZATION CORP CALIF TOB SETTLE HAWAII ST ARPTS SYS CUSTOMER FAC CHARGE REV	6/1/2025 7/1/2024	610,000.00 715.000.00	566,921.80 686,550,15	4.14 4.29
LOS ALTOS CALIF SCH DIST	10/1/2024	1,217,676.00	1,138,140.00	3.59
LOS ALTOS CALIF SCH DIST LOS ANGELES CALIF CMNTY COLLEGE DIST	8/1/2023	530,000.00	515,138.80	3.59
LOS ANGELES CALIF CMNTY COLLEGE DIST LOS ANGELES CALIE MUN IMPT CORP LEASE REV	8/1/2023 11/1/2025	230,000.00	223,550.80 1 019 267 20	3.58
LOS ANGELES CALIF MUN IMPT CORP LEASE REV	11/1/2025	480,000.00	436,828.80	4.00
LOS ANGELES CALIF MUN IMPT CORP LEASE REV LOS ANGELES CALIF MUN IMPT CORP LEASE REV	11/1/2022	305,868.00	299,853.00	3.25
LOS ANGELES CALIF MUN IMPT CORP LEASE REV LOS ANGELES CALIF MUN IMPT CORP LEASE REV	11/1/2023	720,000.00 755 102 40	693,295.20 751 069 80	3.93 3.93
MASSACHUSETTS (COMMONWEALTH OF)	7/15/2024	3,120,000.00	3,117,691.20	3.68
MASSACHUSETTS (COMMONWEALTH OF)	1/15/2025	1,740,000.00	1,739,286.60	3.68
MASSACHUSETTS (COMMONWEALTH OF) MASSACHUSETTS ST WTP RES AUTH	1/15/2025	605,000.00	604,751.95	3.68
MISSISSIPPI ST	11/1/2023	645,000.00	621,051.15	3.70
MISSISSIPPI ST NEW JERSEY ST TPK AUTH TPK REV	11/1/2023 1/1/2025	280,000.00 595.000.00	269,603.60 555,735.95	3.70
NEW JERSEY ST TPK AUTH TPK REV	1/1/2025	255,000.00	238,172.55	3.88
NEW YORK STATE DORMITORY AUTHORITY	3/15/2025	2,690,000.00	2,506,515.10	3.73
NEW YORK STATE DORMITORY AUTHORITY NEW YORK ST URBAN DEV CORP REV	3/15/2024 3/15/2024	3,570,000.00	3,496,101.00 1 853 896 20	3.72
NEW YORK ST URBAN DEV CORP REV	3/15/2024	845,000.00	805,420.20	3.78
PALM DESERT CALIF REDEV AGY SUCCESSOR AGY TAX ALLO PALM DESERT CALIF REDEV AGY SUCCESSOR AGY TAX ALLO	10/1/2022	783,413.40 330,661.50	769,638.10 324,847.25	3.28
PORT AUTH N Y & N J	7/1/2023	2,914,031.50	2,867,444.50	3.71
PORT AUTH N Y & N J	7/1/2023	1,064,864.00	1,047,155.50	3.71
RANCHO SANTIAGO CALIF CMNTY COLLEGE DIST REDONDO BEACH CALIE CMNTY FING AUTH LEASE REV	9/1/2023	865,000.00	837,285.40	3.71
REDONDO BEACH CALIF CMNTY FING AUTH LEASE REV	5/1/2026	450,000.00	403,452.00	4.41
RIVERSIDE CNTY CALIF PENSION OBLIG	2/15/2023	400,000.00 960,000.00	398,672.00 953,606.40	3.48
RIVERSIDE CNTY CALLE INERASTRUCTURE FING AUTH LEAS	2/15/2023	415,000.00	412,236.10	3.85
RIVERSIDE CNTY CALIF INFRASTRUCTURE FING AUTH LEAS	11/1/2024	520,000.00	485,648.80	4.09
SAN BERNARDINO CALIF CMNTY COLLEGE DIST SAN BERNARDINO CALIF CMNTY COLLEGE DIST	8/1/2024 8/1/2024	620,000.00 270.000.00	589,043.40 256.518.90	3.66 3.66
SAN DIEGO CNTY CALIF REGLARPT AUTH ARPT REV	7/1/2023	3,560,000.00	3,454,944.40	4.30
SAN FRANCISCO CALIF CITY & CNTY PUB UTILS COMMN WT	11/1/2022	440,000.00	439,230.00	2.99
SAN FRANCISCO CALIF CITY & CNTY PUB UTILS COMMN WT SAN FRANCISCO CALIF CITY & CNTY ARPTS COMMN INTI A	11/1/2022 5/1/2023	190,000.00 1.635 140 00	189,667.50 1,634 974 50	2.99 3.72
SAN JOSE EVERGREEN CALIF CMNTY COLLEGE DIST	9/1/2023	430,000.00	416,050.80	3.84
SEMITROPIC IMPTUIST SEMITROPIC WTR STORAGE DIST C SEMITROPIC IMPT DIST SEMITROPIC WTR STORAGE DIST C	12/1/2022	1,140,117.00 497,505.60	1,097,239.00 478,795.20	3.16 3.16
SOUTHERN CALIF PUB PWR AUTH PWR PROJ REV	7/1/2023	1,910,000.00	1,860,893.90	3.69
UPPER SANTA CLARA VY JT PWRS AUTH CALIF REV	8/1/2023	2,590,000.00	2,516,495.80	3.86
UPPER SANTA CLARA VY JT PWRS AUTH CALIF REV VALLEJO CALIF WTR REV	8/1/2024 5/1/2023	2,625,000.00	2,480,073.75 580 400 70	3.84 3.96
VALLEJO CALIF WTR REV	5/1/2023	250,000.00	245,932.50	3.96
VENTUKA CNTY CALIF PUB FING AUTH LEASE REV VENTURA CNTY CALIF PUB FING AUTH LEASE REV	11/1/2023 11/1/2023	720,000.00 722,793.60	697,629.60 697,629.60	3.80 3.80
VENTURA CNTY CALIF PUB FING AUTH LEASE REV	11/1/2023	728,517.60	697,629.60 84,849,493,30	3.80

SUB-TOTAL

	MATURITY DATE	BOOK VALUE	MARKET VALUE	YIELD
Variable & Floating Rate	0/43/2020	4 0 40 0 20 0 2	4 000 074 00	0.00
AGAR 2021-4 B AMERICAN EXPRESS CO	2/13/2026	449 930 07	441 459 00	2.39
AMERICAN EXPRESS CO	11/4/2026	2.360.000.00	2.290.663.20	3.68
BANK OF AMERICA CORP	11/4/2026	950.000.00	922.089.00	3.68
BANK OF AMERICA CORP	3/5/2024	744,982.00	697,172.00	4.04
BANK OF AMERICA CORP	3/5/2024	319,278.00	298,788.00	4.04
BANK OF AMERICA CORP	10/22/2025	1,527,212.50	1,383,604.50	4.49
BANK OF AMERICA CORP	10/22/2025	658,281.25	596,381.25	4.49
BANK OF AMERICA CORP	5/19/2024	430,000,00	421.056.00	4.06
BANK OF AMERICA CORP	10/24/2024	2 256 637 50	2 158 380 00	3.82
BANK OF AMERICA CORP	10/24/2024	802,424.00	767,424.00	3.82
BANK OF AMERICA CORP	10/24/2024	1,510,000.00	1,448,512.80	3.82
BANK OF AMERICA CORP	10/24/2024	645,000.00	618,735.60	3.82
BANK OF AMERICA CORP	4/22/2025	1,220,000.00	1,150,277.00	4.01
BANK OF AMERICA CORP	4/22/2025	525,000.00	494,996.25	4.01
BANK OF AMERICA CORP	4/22/2025	255,000.00	240 426 75	4.01
BANK OF AMERICA CORP	4/2/2026	550.000.00	530,733,50	4.52
BANK OF NEW YORK MELLON CORP	7/22/2026	195,000.00	195,345.15	4.59
BANK OF NEW YORK MELLON CORP	6/13/2025	3,410,000.00	3,368,739.00	3.69
BANK OF NEW YORK MELLON CORP	7/24/2026	2,580,000.00	2,591,455.20	4.10
COPAR 2022-2 A3	7/24/2026	930,000.00	934,129.20	4.10
COPAR 2022-2 A3	5/15/2027	1,084,922.31	1,078,544.25	3.92
CARMX 2020-3 A3	3/17/2025	307 035 23	3/2,706.75	3.92
CITIGROUP INC	3/17/2025	133 617 18	131 559 31	3.34
CITIGROUP INC	10/30/2024	1,440,000.00	1,380,988.80	3.76
CITIGROUP INC	10/30/2024	625,000.00	599,387.50	3.76
CITIGROUP INC	10/30/2024	1,740,000.00	1,668,694.80	3.76
CITIGROUP INC	10/30/2024	760,000.00	728,855.20	3.76
CITIGROUP INC	5/1/2025	2,515,000.00	2,367,143.15	4.05
	5/1/2025	430,000,00	404 720 30	4.05
CITIGROUP INC	5/1/2025	185.000.00	174.123.85	4.05
CITIGROUP INC	5/1/2025	205,000.00	192,948.05	4.05
FNA 2014-M8 A2	5/1/2025	85,000.00	80,002.85	4.05
FNA 2014-M8 A2	6/25/2024	770,770.18	701,844.32	5.03
FNA 2014-M13 A2	6/25/2024	334,547.63	304,630.82	5.03
FHMS K-029 A2	2/25/2023	3 607 769 99	3 417 197 65	3.45
FHMS K-031 A2	2/25/2023	1.544.180.90	1.471.293.45	3.45
FHMS K-031 A2	4/25/2023	2,631,514.84	2,458,613.30	3.72
FHMS K-032 A2	4/25/2023	1,139,967.97	1,065,067.30	3.72
FHMS K-032 A2	5/25/2023	2,655,776.95	2,597,184.90	3.72
FHMS K-033 A2	5/25/2023	1,149,819.14	1,124,451.70	3.72
FHMS K-035 A2	7/25/2023	1 143 989 06	1 082 119 30	3.76
FHMS K-047 A2	8/25/2023	514,974.34	494,577.88	3.78
FHMS K-047 A2	5/25/2025	2,666,976.56	2,611,999.00	3.84
FHMS K-048 A2	5/25/2025	930,925.78	911,735.50	3.84
FHMS K-063 A2	6/25/2025	180,617.00	162,384.75	3.85
FHMS K-730 AM	1/25/2027	4,743,179.49	4,644,039.25	3.78
EHMS K-105 A	7/25/2025	106 476 73	105 912 40	4 07
FHMS Q-015 A	7/25/2024	45,632.88	45,391.03	4.07
FHMS Q-015 A	8/25/2024	698,990.40	698,424.22	2.57
FN AL3382	8/25/2024	299,611.92	299,369.23	2.57
FN BM1757	3/1/2023	305,187.38	301,176.56	2.54
FIRST REPUBLIC DANK	4/1/2023	350,000,00	097,000.03	2.74
GMALT 2020-3 A3	2/12/2024	150 000 00	148 314 00	3 40
GMALT 2020-3 A3	8/21/2023	106,111.59	105,861.75	3.05
GMCAR 2021-1 A3	8/21/2023	46,347.59	46,238.47	3.05
GMALT 2021-2 A3	10/16/2025	329,162.45	320,717.83	3.36
GMALT 2021-2 A3	5/20/2024	1,109,825.73	1,091,662.80	4.03
COLDMAN SACHS GROUP INC	5/20/2024	479,924.04	472,070.40	4.03
GOLDMAN SACHS GROUP INC	11/17/2023	1 165 000 00	1 155 516 90	3 13
GOLDMAN SACHS GROUP INC	11/17/2023	510,000.00	505,848.60	3.13
GOLDMAN SACHS GROUP INC	3/8/2024	1,480,000.00	1,450,903.20	3.44
GOLDMAN SACHS GROUP INC	3/8/2024	635,000.00	622,515.90	3.44
HUNTINGTON NATIONAL BANK	10/21/2024	320 236 80	306 281 60	3.88
JPMORGAN CHASE & CO	5/16/2025	3,410,000.00	3,389,505.90	4.06
JPMUKGAN CHASE & CO	12/5/2024	413,655.38	373,301.25	4.26
JPMORGAN CHASE & CO	12/5/2024	335 226 79	313 573 05	4.20
JPMORGAN CHASE & CO	6/1/2024	1,100,000.00	1,076,273.00	4.42
JPMORGAN CHASE & CO	6/1/2024	475,000.00	464,754.25	4.42
JPMORGAN CHASE & CO	9/16/2024	810,000.00	778,960.80	4.00
JPMURGAN CHASE & CO	9/16/2024	350,000.00	336,588.00	4.00
JPMORGAN CHASE & CO	9/16/2024	90.000.00	86.551.20	4.00
JPMORGAN CHASE & CO	2/16/2025	640,000.00	604,985.60	4.02
JPMORGAN CHASE & CO	2/16/2025	275,000.00	259,954.75	4.02
JPMUKGAN CHASE & CO	2/16/2025	570,000.00	538,815.30	4.02
JPMORGAN CHASE & CO	3/16/2025	245,000.00	231,590.05	4.02
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DESCRIPTION		500V/V/V/F		
JPMORGAN CHASE & CO	3/16/2024	640,000,00	628 096 00	3 75
JPMORGAN CHASE & CO	6/1/2025	865,000.00	809,242.10	4.26
JPMORGAN CHASE & CO	6/1/2025	2,308,757.15	2,156,419.70	4.26
JPMORGAN CHASE & CO	6/1/2025	930,000.00	870,052.20	4.20
JPMORGAN CHASE & CO	6/1/2025	405,000.00	378,893.70	4.26
JPMORGAN CHASE & CO	6/1/2025	240 000 00	224 529 60	4.20
JPMORGAN CHASE & CO	8/9/2025	790,000.00	736,129.90	3.91
JPMORGAN CHASE & CO	8/9/2025	310,000.00	288,861.10	3.91
JPMORGAN CHASE & CO	2/24/2026	1.625.000.00	1.541.426.25	4.37
JPMORGAN CHASE & CO	4/26/2026	695,000.00	685,026.75	4.39
JPMORGAN CHASE & CO JDOT 2021 A3	4/26/2026	305,000.00 1 454 720 35	300,623.25	4.39
JDOT 2021 A3	9/15/2025	1,099,871.10	1,061,049.00	3.73
JDOT 2021 A3	9/15/2025	1,639,684.79	1,581,927.60	3.73
KEYCORP	5/23/2025	205 000 00	203 216 50	3.73 4 10
KEYCORP	5/23/2025	35,039.55	34,695.50	4.10
KEYBANK NA	1/3/2024	1,010,000.00	997,142.70	3.04
KEYBANK NA	6/14/2024	615,000.00	596,992.80	3.34
MORGAN STANLEY	10/21/2025	430,000.00	397,152.30	4.15
MORGAN STANLEY MORGAN STANLEY	10/21/2025	185,000.00	170,867.85	4.15
MORGAN STANLEY	11/10/2023	350,000.00	347,406.50	3.04
MORGAN STANLEY	1/25/2024	1,290,000.00	1,270,108.20	3.24
MORGAN STANLEY MORGAN STANLEY	1/25/2024	1.200.000.00	541,519.00 1.138.176.00	3.24
MORGAN STANLEY	1/22/2025	520,000.00	493,209.60	3.89
MORGAN STANLEY	1/22/2025	990,580.00	948,480.00	3.89
MORGAN STANLET MORGAN STANLEY	2/18/2026	1,215,000.00	1,154,954.70	4.35
MORGAN STANLEY	2/18/2026	1,365,000.00	1,297,541.70	4.35
MORGAN STANLEY MORGAN STANLEY	2/18/2026	390,000.00	370,726.20	4.35
MORGAN STANLEY MORGAN STANLEY	4/5/2024	265,000.00	259,217.70	3.50
MORGAN STANLEY	4/5/2024	75,000.00	73,363.50	3.50
NALT 2020-B A3 NALT 2020-B A3	10/16/2023 10/16/2023	121,673.02 53,618,62	121,288.85 53 449 32	4.24
CITIZENS BANK NA	5/23/2025	625,000.00	619,493.75	4.31
SPIRE MISSOURI INC	12/2/2024	1,395,000.00	1,383,561.00	3.15
TRUIST BANK	8/2/2024	2.994.236.00	2.787.540.00	3.15
TRUIST BANK	8/2/2024	1,283,244.00	1,194,660.00	4.00
TLOT 2021-A A3	4/22/2024	2,344,726.34	2,295,283.66	4.63
TLOT 2021-A A3	4/22/2024	329,961.49	323,003.67	4.63
TRUIST FINANCIAL CORP	7/28/2026	880,000.00	878,020.00	4.20
TRUIST FINANCIAL CORP TRUIST FINANCIAL CORP	7/28/2026	640,000.00 1 150 000 00	638,560.00 1 147 412 50	4.20
TRUIST FINANCIAL CORP	7/28/2026	395,000.00	394,111.25	4.20
UNITED STATES TREASURY	10/31/2023	5,265,064.27	5,254,095.00	2.91
WELLS FARGO & CO	10/30/2025	1,524,791.00	1,385,504.00	4.38
WELLS FARGO & CO	10/30/2025	657,237.50	597,200.00	4.38
WELLS FARGO & CO	6/2/2024	6,140,580.00	5,878,500.00	4.12
WELLS FARGO & CO		320,000,00	300 170 20	0.04
	5/19/2025	320,000.00 135,000.00	300,179.20 126,638.10	3.94
WELLS FARGO & CO	5/19/2025 4/25/2026	320,000.00 135,000.00 1,360,000.00	300,179.20 126,638.10 1,332,541.60	3.94 4.44
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA	5/19/2025 4/25/2026 4/25/2026	320,000.00 135,000.00 1,360,000.00 490,000.00 158 654 969 56	300,179.20 126,638.10 1,332,541.60 <u>480,106.90</u> 152 567 159 14	3.94 4.44 4.44
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA	5/19/2025 4/25/2026 4/25/2026	320,000.00 135,000.00 1,360,000.00 490,000.00 158,654,969.56	300,179.20 126,638.10 1,332,541.60 480,106.90 152,567,159.14	3.94 4.44 4.44
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK	5/19/2025 4/25/2026 4/25/2026 4/25/2026 AL 5/24/2023 5/24/2023	320,000.00 135,000.00 1,360,000.00 490,000.00 158,654,969.56 1,809,384.60 789,731.40	300,179.20 126,638.10 1,332,541.60 <u>480,106.90</u> 152,567,159.14 1,769,999.00 772,541.00	3.94 4.44 4.44 3.59 3.59
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Suprantionals INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK	5/19/2025 4/25/2026 4/25/2026 4/25/2026 4/25/2023 5/24/2023 9/23/2024	320,000.00 135,000.00 490,000.00 158,654,969.56 1,809,384.60 789,731.40 6,764,990.20	300,179,20 126,638,10 1,332,541.60 <u>480,106,90</u> 152,567,159,14 1,769,999,00 772,541.00 6,362,513,70	3.94 4.44 4.44 3.59 3.59 3.59 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK	5/19/2025 4/25/2026 4/25/2026 4/25/2026 4/25/2026 4/25/2023 5/24/2023 9/23/2024 9/23/2024	320,000.00 135,000.00 490,000.00 158,654,969.56 1,809,384.60 789,731.40 6,764,990.20 2,992,783.70	300, 179,20 126,638,10 1,332,541,60 480,106,90 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,95 2,814,730,95	3.94 4.44 4.44 3.59 3.59 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOT/ Surganizationals INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK	5/19/2025 4/25/2026 4/25/2026 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 3/19/2024	320,000.00 135,000.00 490,000.00 158,654,969.56 1,809,384.60 789,731.40 6,764,990.20 2,992,783.70 1,219,097.20 5,349,700.00	300,179,20 126,638,100 480,106,90 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,95 1,145,568,20 4,920,300,00	3.94 4.44 4.44 3.59 3.59 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 4/25/2026 4/25/2026 AL 5/24/2023 9/23/2024 9/23/2024 9/23/2024 3/19/2024 11/24/2023	320,000.00 135,000.00 490,000.00 758,654,969.56 1,809.334.60 789,731.40 6,764,990.20 2,992,783.70 1,219,097.20 5,349,700.00 3,043,442,50	300, 179,20 126,638,10 4.332,541,60 480,106,39 152,567,159,14 1,769,999,00 772,541,00 6.362,513,70 2.814,730,95 1,146,568,20 4,920,300,00 2,928,646,350	3.94 4.44 4.44 3.59 3.59 3.55 3.55 3.55 3.55 3.57 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Suprantionals INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 4/25/2026 4/25/2026 4/25/2026 1/25/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/2/4/2023 11/24/2023	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 7789,973,46 6,774,990,20 2,992,783,70 5,349,700,00 3,043,442,50 1,841,033,25 803,269,57	300,179,20 126,638,100 1,332,541,60 480,106,99 152,567,159,14 1,769,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,771,587,45 7,72,969,05	3.94 4.44 4.44 3.59 3.59 3.55 3.55 3.55 3.55 3.55 3.58 3.58 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA SUB-TOTA SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 5/19/2026 4/25/2026 3/24/2023 5/24/2023 5/24/2023 9/25/2024 9/25/2024 9/25/2024 9/25/2024 3/19/2024 11/24/2023 11/24/2023	320,000,00 135,000,00 1,360,000,00 158,654,969,56 1,809,384,60 769,731,40 6,764,990,20 2,992,783,70 1,219,097,20 5,349,700,00 3,043,442,50 1,841,033,25 803,269,25 1,990,070,35	300, 179,20 126,638,100 1,332,541,60 480,106,99 152,567,159,14 1,769,999,00 772,541,00 6,362,613,70 2,814,730,95 1,146,568,20 4,920,300,00 2,928,640,50 1,772,599,05 1,772,599,05 1,725,2805,75	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.58 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Suprantionals INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 769,731,40 6,764,990,20 2,992,783,70 1,219,097,20 5,349,700,00 3,043,442,50 1,843,702,00 1,841,033,25 803,269,25 1,990,770,35 868,199,110 7,2472,501,65	300, 179,20 126,638,100 1,332,541,60 480,106,590 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,95 1,146,568,20 4,920,300,00 2,928,640,50 1,772,597,65 1,952,805,75 851,599,50 2,664,255,10 2,664,2	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-DOTA SUPERATORIAL DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 4/25/2026 4/25/2026 1/2 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 4/20/2023 4/20/2023	320,000,00 135,000,00 1,360,000,00 158,654,969,55 1,800,384,60 789,731,40 6,764,390,20 2,959,731,40 6,764,390,20 1,549,700,00 3,043,442,50 1,841,033,25 803,269,25 1,990,870,35 8,869,910 2,7,472,501,55	300, 179,20 126,638,100 4,332,541,60 480,106,99 152,567,159,14 1,765,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,777,587,45 772,969,05 1,952,805,75 851,599,50 26,064,255,10	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.58 3.58
WELLS FAREO & CO WELLS FAREO & CO SUB-TOTA SUB-TOTA SUB-TOTA SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	5/19/2025 4/25/2026 4/25/2026 1/2 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 1/24/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023 1/12/4/2023	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,965,55 1,809,384,60 739,731,40 6,764,990,20 2,992,783,70 1,219,097,20 5,349,700,00 3,043,442,55 1,841,032,25 5,849,700,00 3,043,442,55 1,841,032,25 8,869,970,02 2,7472,501,55 \$ 1,375,917,828,09	300,179,20 126,638,100 1,332,541,60 400,106,90 152,567,159,14 1,765,999,00 772,541,00 6,362,573,70 2,814,730,35 1,145,560,00 4,950,20 2,954,730 5,771,587,45 1,771,587,45 1,771,587,45 1,772,969,05 1,952,805,75 8,15,99,50 26,064,255,10 5 1,905,147,338,60	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.58 3.58
WELLS FARCO & CO WELLS FARCO & CO SUB-TOTA	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023 11/24/2023	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 789,731,40 6,764,990,20 2,992,783,70 1,219,097,20 3,043,442,50 1,847,403,25 403,269,25 1,990,70,35 888,199,10 27,472,261,55 \$ 1,375,917,828,09	300,179,20 126,638,100 1,332,541,60 400,106,90 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,35 1,145,568,20 4,920,300,00 2,928,6450,55 1,775,569,55 7,755,805,75 8,557,599,50 26,064,255,10 5 1,905,147,330,60	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.57 3.58 3.58 3.58 3.52 3.52
WELLS FARCO & CO WELS FARCO & CO WELS FARCO & CO SUB-TOTA SUB-TOTA SUB-TOTA SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM IN	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 1/12/2023 1/12/2023 1/12/2023 1/12/2023 4/20/2024 4/20/2023 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 769,374,40 2,992,783,70 1,219,097,20 3,043,442,50 1,949,700,00 3,043,442,50 1,949,700,00 3,043,442,50 1,949,070,35 886,199,10 27,472,261,55 \$ 1,975,917,829,09 BOOK VALUE	300,179,20 126,638,100 1,332,541,60 480,106,99 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,35 1,146,568,20 4,920,300,00 2,928,640,50 1,772,567,45 772,969,05 1,925,205,75 851,599,50 26,064,225,10 \$ 1,905,147,330,60	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.58 3.58 3.58
WELLS FARCO & CO WELLS FARCO & CO SUB-TOTA Surgentified INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-ANTIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT INTERNATIONAL BANK	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 4/20/2023 4/20/2023 4/20/2023 4/20/2023 4/20/2023	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 769,731,40 6,764,990,20 2,992,783,70 1,219,097,20 5,349,700,00 3,043,442,50 1,940,703,5 803,269,25 1,990,670,35 866,199,10 2,74,72,501,55 \$ 1,975,917,829,09 BOOK VALUE	300,179,20 126,638,100 1,332,541,60 480,106,99 152,567,159,14 1,769,999,00 772,541,00 6,362,513,70 2,814,730,55 1,145,688,20 4,920,300,00 2,928,640,50 1,772,599,05 1,925,2805,75 851,599,50 26,064,285,10 \$ 1,905,147,330,69	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Superiod State	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/24/2023 11/24/24/24/24/24/24 11/24/24/24/24/24 11/24/24/24	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 769,373,40 6,764,990,20 2,992,783,70 1,219,097,20 3,043,442,50 1,847,000,00 3,043,442,50 1,997,000 2,74,72,501,55 5 1,975,917,822,09 BOOK VALUE 51,022,88 80,234,520,09	300, 179,20 126,638,100 4,332,541,60 400,106,90 152,567,159,14 1,769,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,777,837,45 772,969,05 1,952,805,75 8,1599,50 2,80,64,255,70 5,1,952,80 5,1,082,83 80,234,529,09 80,234,529,00 5,1,082,83 80,234,529,00 80,500,00 80,500,00 80,500,00 80,500,00 80,500,00 80,500,00 80,500,00 80,500,00 80,500,000 80,500,000 80,500,000 80,500,000,000 80,500,000,000	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Superiod State	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/24/2023 11/24/24/24/24/24 11/24/24/24 11/24/24	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,969,56 1,809,384,60 769,731,40 6,764,990,20 2,992,783,70 1,219,097,20 3,043,442,50 1,847,900,00 3,043,442,50 1,947,000,00 3,043,442,50 5,349,700,00 2,74,72,501,55 5 1,975,917,823,09 BOOK VALUE 51,082,83 80,234,529,09 5 80,234,529,09 5 80,235,521,92	300, 179,20 126,638,100 4,332,541,60 400,106,90 172,567,159,14 1.769,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,922,640,557 1,952,805,75 8,1599,50 2,80,64,255,10 2,80,64,255,10 5,1,952,80 5,1,952,80 5,1,952,80 5,1,952,80 5,1,952,80 8,0,234,529,09	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Superiod State	5/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/24/22 11/24/24/22 11/24/24/22 11/24/24/24/24/24 11/24/24/2	320,000,00 135,000,00 1,360,000,00 156,654,969,56 1,899,374,00 6,766,979,00 6,766,979,00 7,2192,789,70 6,749,700,00 3,043,442,50 1,841,033,25 1,990,870,35 5 1,970,870,55 5 1,975,917,829,09 8 80 ,234,529,09 8 80 ,234,529,09 8 80 ,235,611,92 8 80 ,235,611,92 8 8 8 ,235,611,92 8 8 8 8 ,235,611,92 8 8 8 8 8 8 8 8	300, 179,20 126,638,100 4,332,541,60 400,106,90 172,567,159,14 1.769,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,972,989,05 1,952,805,75 85,1599,50 26,064,285,10 5 1,905,147,330,69 51,082,83 80,234,529,09	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.58 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA SUBJECT STANDARD SEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION SAND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION SPUND BOND PROCEEDS PORTFOLIO-TOTAL DESCRIPTION BOND PROCEEDS PORTFOLIO-TOTAL DEBT SI	4/19/2025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 11/24/2023 4/20/2024 4/20/2024 4/	320,000,00 135,000,00 1,360,000,00 490,000,00 155,654,969,55 1,800,384,60 769,737,40 6,764,390,20 2,959,709,20 1,947,000 3,043,442,50 1,947,000 3,043,442,50 1,990,870,35 5 1,990,870,35 5 1,990,870,35 5 1,950,872,82 80,224,529,09 5 80,224,529,09 5 80,224,529,09 5 80,224,529,09 5 80,224,529,09 5 80,225,511,92 3	300,179,20 126,638,100 4,332,541,60 480,106,90 172,567,159,14 1,769,999,00 6,362,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,777,587,45 772,969,05 1,952,805,75 8,15,99,50 26,064,255,10 \$ 1,905,147,330,69 51,082,83 80,234,529,09	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.58 3.58 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA SUBJECT STANDARD SEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM BOND PROCEEDS PORTFOLIO-TOTAL DESCRIPTION <u>DESCRIPTION</u> <u>91 EXPRESS LANES 2013 BONDS (US Banki</u>)	S192025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 11/24/2023 4/20/2024 4/20/2023 4/20/2024 4/20	320,000,00 135,000,00 1,360,000,00 490,000,00 156,654,965,65 1,800,384,60 799,731,40 6,764,960,20 2,992,783,70 1,219,970,00 5,049,970,00 5,049,970,00 5,049,970,00 5,049,970,00 5,1,990,870,35 5,1,990,870,35 5,1,992,83 80,224,529,09 5,1,062,83 80,224,529,09 5,802,856,11,92 5 80,285,611,92 5 8 80,285,611,92 5 8 8 80,285,611,92 5 8 8 8 8 8 8 8 8 8 8 8 8 8	300, 179,20 126,638,100 480,106,99 125,567,159,14 1,769,999,00 6,362,513,70 4,920,300,00 2,928,640,50 1,771,887,45 772,969,05 1,952,805,75 8,15,99,50 2,6,054,255,10 5,1,082,83 80,234,529,09 8,0234,529,09 8,0234,529,09 8,0234,529,09 1,082,83 80,234,529,09 8,0234,529,09 1,082,83 1,082,	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.58 3.58 3.58
WELLS FAREO & CO WELLS FAREO & CO SUB-TOTA Surgensember INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-ANTIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION SOLUCION INTERNATIONAL BANK FOR RECONSTRUCTION SOLUCION SOLUCION INTERNATIONAL BANK FOR RECONSTRUCTION SOLUCION SOL	S192025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/20/2024 4/	320,000,00 135,000,00 1,360,000,00 490,000,00 158,654,965,55 1,809,384,60 799,731,40 6,774,960,20 2,992,783,70 1,219,097,20 5,044,050 1,990,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,199,870,35 5 ,1082,83 80,224,529,09 5 ,802,858,11,92 5 800K VALUE 51,082,83 80,234,529,09 5 ,802,835,811,92 5 800K VALUE 51,092,83 800K VALUE 51,092,83 800K VALUE 51,092,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 5,1082,83 800K VALUE 10 ,999,167,79 10 ,999,167,79 10 ,999,167,79 10 ,999,167,79 10 ,999,167,79 10 ,999,167,79 10 ,999,167,79 10 ,999,167,99 10 ,999,167,199 10 ,990,167,199 10 ,990,167,199 10 ,990,167,199	300, 179,20 126,638,100 1,332,541,60 480,106,99 725,567,159,14 1,765,999,00 6,362,513,70 2,814,700,95 1,144,568,20 1,744,568,20 1,771,687,45 772,969,05 1,952,805,75 <u>85,1599,50</u> 26,064,255,10 <u>51,082,83</u> 80,234,529,09 <u>80,234,529,09</u> <u>80,234,529,09</u> <u>80,234,529,09</u> <u>81,0788,450,00</u> Not	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.58 3.58 3.58
WELLS FAREO & CO WELLS FAREO & CO WELLS FAREO & CO SUB-TOTA SUB-TOTA SUB-TOTA INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-ANTIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION SUBJEVENT SUB-TOX SUB-TOX SUB-TOX SUB-TOX DESCRIPTION SI EXPRESS LANES 2013 BONDS (US Bank) LIOYAS Bank CP FIRST AMERICAN GOVERNMENT OBLIGATIONS FUND (Debt Service FUND FIRST AMERICAN GOVERNMENT OBLIGATIONS FUND (Debt Service FUND SUB-TOX SUB-TOX SUB-TOX SUB-TOX SUBJEVICENT SUBJEVICE	S119.0225 4/25/026 4/25/2026 5/24/023 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 11/24/023 4/20/2022 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/20/2024 4/2	320,000,00 135,000,00 1,360,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000 5,349,700,00 3,043,442,50 1,291,007,20 5,349,700,00 3,043,442,50 1,291,007,20 5,349,700,00 3,043,442,50 1,291,007,00 5,349,700,000,000,000,000,000,000,000,000,00	300, 179,20 126,638,100 1,332,541,60 480,106,99 125,567,159,14 1,765,999,00 2,874,578,999,00 2,874,578,999,00 2,874,578,258 1,952,805,75 8,15,99,50 26,064,255,10 \$ 1,905,147,330,60 \$ 1,905,147,330,60 \$ 51,082,83 80,234,529,09 REQUIRED AMOUNT. 10,798,450,00 N/A	3.94 4.44 3.59 3.56 3.56 3.55 3.55 3.58 3.58 3.58 3.58 3.58 3.58
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Surgenterings INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-ATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM BOND DESCRIPTION <u>DESCRIPTION</u> <u>91 EXPRESS LAINES 2013 BONDS / US Bank</u> JEXPRESS LAINES 2013 BONDS / OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES 2013 BONDS - OPERATING & MAINTENANCE RES 91 EXPRESS LAINES	S119.0225 4/25.0206 4/25.0206 5/24.2023 5/24.2023 9/23.2024 9/23.2024 9/23.2024 9/23.2024 9/23.2024 11/24.2023 11/24.2023 11/24.2023 4/20/2022 4/20/2022 4/2	320,000,00 135,000,00 1,360,000,00 436,000,00 158,654,969,56 1,809,384,60 789,373,40 6,764,990,20 2,982,783,70 1,219,097,20 5,349,700,00 3,043,442,50 1,940,470,35 888,199,10 27,472,267,55 5 1,975,917,828,09 5 80,284,529,09 5 80,285,611,92 5 80,285,611,92 5 80,285,611,92 5 80,285,611,92 5 10,999,167,79 551,513,21	300, 179,20 126,638,100 4,302,641,60 400,106,90 152,567,159,14 1,769,999,00 6,352,513,70 2,814,730,95 1,144,568,20 4,920,300,00 2,928,640,50 1,922,802,75 8,15,99,60 1,952,805,75 8,15,99,60 2,6,064,255,10 5 1,905,147,330,69 5 5 1,905,147,330,69 5 1,0798,450,00 N/A 13,000,000,00	3.94 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARGO & CO WELLS FARGO & CO SUB-TOTA Superiodic Superiodic Superiodi	S192025 4/25/2026 4/25/2026 5/24/2023 5/24/2023 9/23/2024 9/23/2024 9/23/2024 9/23/2024 11/24/2023 11/24/2023 11/24/2023 11/24/2023 4/20/2022 4/20/2024 4/20/2022 4/20/2024 4/20	320,000,00 135,000,00 1,360,000,00 490,000,00 156,654,965,65 1,800,384,60 799,731,40 6,764,960,20 2,992,783,70 1,219,707,00 5,049,700,00 5,049,700,00 5,049,700,00 5,049,700,00 5,1,900,770,35 5,1,900,770,770,770,770,770,770,770,770,770	300, 179,20 126,638,100 4,332,541,60 480,106,99 172,567,159,14 1,769,999,00 6,362,513,70 2,814,700,95 1,144,568,20 1,771,587,45 772,969,05 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805,75 8,15,99,50 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,952,805 26,054,255,10 \$ 1,905,805 1,905,905 1,905,805	3.94 4.44 4.44 3.59 3.55 3.55 3.55 3.55 3.55 3.55 3.55
WELLS FARCO & CO WELLS FARCO & CO WELLS FARCO & CO SUB-TOTA Surgentionals INTER-AMERICAN DEVELOPMENT BANK INTER-AMERICAN DEVELOPMENT BANK INTER-ANTIONAL BANK FOR RECONSTRUCTION AND DEVELOPM INTERNATIONAL BANK FOR RECONSTRUCTION SUBJECTOR SUB-TOTA SUB-TOTA SUB-TOTA DESCRIPTION <u>DESCRIPTION</u> <u>91 EXPRESS LANES 2013 BONDS (US Bank)</u> LIOVAS BANK CP FIRST AMERICAN GOVERNMENT OBLIGATIONS FUND (Debt Service FU <u>91 EXPRESS LANES 2013 BONDS (US Bank)</u> LIOVAS BANK CP FIRST AMERICAN GOVERNMENT OBLIGATIONS FUND (Debt Service FU <u>91 EXPRESS LANES 2013 BONDS (US Bank)</u> LIOVAS BANK CP FIRST AMERICAN GOVERNMENT OBLIGATIONS FUND (Debt Service FU <u>91 EXPRESS LANES 2013 BONDS (US BANK)</u> DESCRIPTION <u>91 EXPRESS LANES 2013 BONDS (US BANK)</u> DESCRIPTION <u>91 EXPRESS LANES 2013 BONDS (US BANK)</u> DESCRIPTION <u>91 EXPRESS LANES 2013 BONDS (US BANK)</u> DESCRIPTIONS FUND (Debt Service FU <u>91 EXPRESS LANES 2013 BONDS (US BANK)</u> DESCRIPTIONS ED DESCRIPTED AMENT DELIGATIONS	S119.0225 4/25/0205 4/25/0205 5/24/023 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 9/23/024 11/24/023 11/24/023 11/24/023 4/20/2023 4/20/2023 4/20/2023 11/24/023 11/24/023 11/24/023 11/24/023	320,000,00 135,000,00 1,360,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000,00 490,000 490,200 5,349,700,00 3,043,442,55 1,249,007,03 5,349,700,00 3,043,442,55 1,990,770,03 5,349,700,00 2,7472,501,55 5,1512,00 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000 5,000,000,000,000 5,000,000,000,000 5,000,000,000,000,000 5,000,000,000,000,000 5,000,000,000,000,000,000,000,000,000,0	300, 179,20 126,638,100 1,332,541,60 480,106,99 172,567,169,14 1,765,89,99,00 6,362,513,70 2,814,700,95 1,145,568,20 1,923,800,00 2,928,640,50 1,771,587,45 7,771,587,45 7,771,587,45 7,772,969,05 2,6,064,255,10 \$ 1,992,80 80,234,529,09 REQUIRED AMOUNT. 10,798,450,00 N/A 13,000,000,00	3.94 4.44 4.44 3.59 3.56 3.56 3.56 3.56 3.58 3.58 3.58 3.58 3.58 3.58 3.58 3.58
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TOTAL PORTFOLIO

FFCB - Federal Farm Credit Banks FHLB - Federal Home Loan Banks FHLMC - Federal Home Loan Mortgage Corporation FNMA - Federal National Mortgage Association SLMA - Student Loan Marketing Association

Book Value \$ 2,391,300,284.67 \$

Market Value 2,240,295,257.09


COMMITTEE TRANSMITTAL

October 10, 2022

ors

From: Andrea West, Interim Clerk of the Board

Subject: Orange County Transportation Authority Code of Conduct

Executive Committee Meeting of October 3, 2022

Present: Chairman Murphy, Vice Chairman Hernandez, Directors Bartlett, Do, Hennessey, and Muller Absent: Director Jones

Committee Vote

This item was declared passed by the Members present.

Committee Recommendation

Receive and file as an information item.



October 3, 2022

From: Darrell E. Johnson, Chief Executive Officer

Subject: Orange County Transportation Authority Code of Conduct

Overview

As required by the Federal Transit Administration and organizational best practices, the Orange County Transportation Authority maintains a written code of conduct to provide direction to officers, employees, agents, and members of the Board of Directors on appropriate and professional behavior in conducting the business of the Orange County Transportation Authority.

All

Recommendation

Receive and file as an information item.

Background

The Federal Transit Administration (FTA) requires that all funding recipients maintain a written code of conduct, or standards of conduct, that will govern the actions of its officers, employees, Board Members, or agents engaged in the award or administration of sub-agreements, leases, third-party contracts, or other arrangements supported with federal assistance.

The Orange County Transportation Authority (OCTA) last updated and adopted the Code of Conduct Policy on November 9, 2020.

Discussion

The OCTA Code of Conduct Policy (Attachment A) requires that employees, agents, and members of the Board of Directors (parties) exercise the highest level of ethical behavior in the conduct of OCTA business. It includes expectations that these parties comply with the law, as well as with the letter and spirit, of the Code of Conduct.

Consistent with FTA requirements and codes of conduct adopted by other public agencies, the OCTA Code of Conduct prohibits both real and apparent conflicts

of interest and includes procedures for identifying and preventing such conflicts. As a means of promoting a strong ethical culture at OCTA, the Code of Conduct also includes reiterations of existing OCTA policies or federal and state laws prohibiting discrimination, retaliation, sexual harassment, and other inappropriate behavior.

The section of the Code of Conduct related to gifts is a required element of a written code of conduct as provided in OCTA's Master Agreement with the FTA. The rules prohibit OCTA employees, agents, and members of the Board of Directors from accepting any gifts, gratuities, favors, or anything of monetary value from contractors, subcontractors, bidders, or proposers on federally funded OCTA contracts. On non-federally funded contracts, gifts totaling less than \$520 from other sources would be permitted so long as designated employees, as defined in OCTA's Conflict of Interest Policy, report the gifts on their annual Statements of Economic Interests in accordance with state law. This gift limit is updated biennially, and the Code of Conduct presented herewith has been updated to reflect changes made and effective as of 2021.

Changes to 2022 Code of Conduct Policy are summarized below:

- 1. Section V. L, the word "telephone" was removed;
- 2. Section VII. B was revised to update the division name;
- 3. Section VII. B was revised to remove reference to the specific type of discipline that will result from a policy violation;
- 4. Section V. F was revised to mirror changes to Title 2 of California Code of Regulations Section 18940.2 as it relates to gifts.

The Code of Conduct is provided to employees on their date of hire and biennially thereafter, with acknowledgement of receipt required.

Orange County Transportation Authority Code of Conduct

Summary

The Orange County Transportation Authority Code of Conduct was developed to provide direction to Orange County Transportation Authority employees, agents, and the Board of Directors on matters related to behavior while conducting Orange County Transportation Authority business.

Attachment

A. Orange County Transportation Authority Code of Conduct Policy

Prepared by:

Karen Dechenso

Karen DeCrescenzo Human Resources Manager (714) 560-5547

Approved by:

Maggie McJilton Executive Director, People and Community Engagement (714) 560-5824

ATTACHMENT A

uman Resources and Organizational DevelopmentPeople and Community Engagement

Chief Executive Officer

CODE OF CONDUCT POLICY

Policy#: PACEHROD-BOD-

Origination 07/13/2009

Revised Date: <u>11/09/2020</u>08/26/22

I. PURPOSE

The purpose of this policy is to provide the guidelines and expectations to all Orange County Transportation Authority (OCTA) employees regarding the conduct that is expected both at and away from work. OCTA is a public agency that shall conduct its business with integrity in an honest and ethical manner. Any attempt to evade or circumvent any requirements of this policy or of any rules or laws applicable to OCTA and its employees is improper.

II. ORGANIZATIONAL UNITS AFFECTED

This policy applies to all OCTA employees. For purposes of the Code of Conduct, OCTA employees shall mean and include employees, members of the Board of Directors, and agents of OCTA. OCTA employees shall comply with the letter and spirit of this policy and the law.

The Human Resources Department shall be responsible for the administration of this policy and maintenance of employee acknowledgements of receipt.

III. POLICY

- A. OCTA employees shall conduct OCTA's business in compliance with the law, regulations, OCTA policies, and good judgment based on OCTA's values and goals. OCTA employees shall avoid speech or behavior that is likely to create an appearance of impropriety.
- **B.** It is up to each OCTA employee to maintain a professional, safe, and productive work environment. OCTA employees shall treat each other professionally and with courtesy at all times. Differences of opinion on work issues should be expressed in a constructive manner that promotes sharing ideas and effective teamwork to resolve problems to meet the challenges of OCTA.

IV. DEFINITIONS

Not applicable.

V. PROCEDURE

A. Non-Deliscrimination

No person shall be discriminated against in employment because of race, color, creed, religion, sex, gender (including pregnancy, childbirth, breastfeeding) gender identity, gender expression, genetic information, ancestry, age, national origin, marital status,

Policy#: PACEHROD-BOD-

Origination 07/13/2009

Revised 11/09/202008/26/22

sexual orientation, military and veteran status, physical or mental disability, or any other status protected by applicable federal or state statutes, except where a bona fide occupational qualification applies.

B. Workplace Harassment

- 1. No OCTA employee or person associated with OCTA shall engage in sexual harassment. Sexual harassment includes any sexual advances or requests for sexual favors which are unwelcome or where submission to or rejection of such conduct is used as the basis for employment or business decisions. Sexual harassment also includes verbal, visual, and/or physical conduct of a sexual nature, which creates an intimidating, hostile, or offensive working environment.
- 2. No OCTA employee or person associated with OCTA shall engage in harassment based on race, color, religion, creed, , ancestry, sex (including pregnancy, childbirth, and breastfeeding) and medical conditions related to pregnancy, childbirth, and breastfeeding), gender, gender identity, gender expression, sexual orientation, marital status, medical condition, genetic information, military and veteran status, age, physical or mental disability, national origin, transgender, or any other legally protected status as established by federal or state law. Harassment includes verbal, visual, and/or physical conduct. Such conduct constitutes harassment when the submission to the conduct is made an explicit or implicit condition of employment, submission to or rejection of the conduct used as the basis for an employment decision, or the harassment interferes with an employee's work performance, or creates an intimidating hostile or offensive work environment. Workplace harassment, discrimination, or retaliation will not be tolerated whether by OCTA employees, vendors of OCTA, customers, or other third parties.
- **C.** Relationships With Contractors

OCTA business shall be conducted in a manner above reproach, with impartiality, and without bias. Particularly in relationships with contractors and potential contractors, OCTA employees must avoid any actual or appearance of conflict of interest or impropriety.

D. Use of OCTA Assets

OCTA employees shall not use any OCTA assets for personal gain or for any purpose other than OCTA business. Subject to the restrictions in this section and if permitted by the employee's supervisor, some occasional and limited personal use is allowed so long as it does not interfere with the performance of the employee's duties and does not result in any additional expense to OCTA. However, OCTA telephones, computers, e-mail, or internet access shall not be used for e-mail chain letters, for religious or political advocacy, for excessive personal communications, for personal financial gain, to seek outside employment, for any purpose that could reasonably be viewed as abusive, harassing, hostile, or intimidating to OCTA customers or employees, to access entertainment or sexually explicit sites, or for any use otherwise prohibited by

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law. OCTA reserves the right to monitor and review all records of usage by OCTA employees of any OCTA assets. No use of OCTA telephones, computers, e-mail or internet access, or any use of any other OCTA asset shall be private to the employee, and no OCTA employee shall be given any basis for an expectation of privacy in any such use.

E. Confidential Information

OCTA employees shall maintain the confidentiality of any confidential information related to contracts, construction, procurement, litigation strategy, personnel files, employee medical information, or other proprietary information to which they have access through their employment with OCTA. Such confidentiality shall be maintained during and after employment with OCTA. OCTA employees shall not use confidential information for any purpose other than in the performance of their job for the benefit of OCTA. Confidential information shall only be disclosed to authorized persons.

- F. Gifts
 - OCTA employees or immediate family members shall neither solicit nor accept gifts, gratuities, favors, or anything of monetary value, except unsolicited items of nominal intrinsic value from any OCTA contractor, subcontractor, bidder, or proposer for an OCTA contract which is federally-_funded. A bidder/proposer is a party which has submitted a bid or proposal for an active procurement which has not been awarded or otherwise concluded.
 - 2. Designated OCTA employees may not accept gifts totaling more than \$5020 pursuant to Title 2 of California Code of Regulations Section 18940.2, or over the amounts allowed pursuant to Government Code Sections 89502 and 89503 as adjusted biennially in a calendar year from a single source other than one identified in paragraph one1 above.
 - **3.** For purposes of this code, a gift shall have the meaning it is defined to have in the California Political Reform Act (Act) and the regulations issued pursuant to the Act.
- G. Conflicts of Interest
 - 1. A conflict of interest, or at least an appearance of impropriety, exists when the interests, investments, outside employment or personal enterprises of the employee or a member of his or her immediate family could compromise the employee's duty of loyalty, or otherwise conflict with or appear to conflict with his or her job performance, objectivity, impartiality, or ability to make fair business decisions in the best interest of OCTA. A conflict of interest may arise in any situation in which an OCTA employee is in a position where he or she could use his or her contacts or position in the agency to advance the private business or financial interests of the employee or his or her immediate family, whether or not at the expense of OCTA. An OCTA employee may also have a conflict of interest if called upon to make a decision concerning a person or entity that the employee worked for during the previous 12 months.

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- **2.** An OCTA employee who has a conflict of interest shall not participate in the making of any decision or contract in which the employee has a financial interest.
- 3. Any OCTA employee with such conflict of interest must disqualify himself or herself from making, participating in the making, or in any way attempting to use his or her official position to influence OCTA's decision in which he or she knows, or has reason to know, that he or she has a financial interest. An OCTA employee should also disqualify himself or herself from participating in an OCTA decision where the employee does not have a disqualifying financial interest, but where the making of the decision will have some other significant effect on the employee, or a member of his or her immediate family.
- 4. Any OCTA employee who may have a conflict of interest as described in paragraphs one4 or two2 relative to a prospective contractor, subcontractor, bidder or contract, or any other OCTA decision or issue, must advise his or her supervisor of the possible conflict of interest at the earliest possible time.
- 5. Upon request, the General Counsel shall advise an OCTA employee and his or her supervisor regarding whether it is appropriate for an OCTA employee to participate in a decision involving a possible conflict of interest.
- H. Incompatible Activities

No OCTA employee shall engage in any outside activity that is inconsistent, incompatible, or that interferes with his or her ability to efficiently and effectively carry out his or her OCTA duties. Incompatible activities include, but are not limited to, any of the following:

- 1. The use for private gain or advantage of the employee's OCTA time, facilities, equipment or supplies, or the badge or uniform, prestige, or influence of the employee's OCTA employment.
- 2. Receipt or acceptance by the employee of any money or other consideration from anyone other than OCTA for the performance of an act which the employee, if not performing such act, would be required or expected to render in the regular course or hours of OCTA employment or as part of the employee's duties.
- **3.** Time demands from outside activities that would interfere with the ability of the OCTA employee to devote his or her full work time, attention, and efforts to his or her OCTA duties.
- I. Override of Controls

Control activities, such as authorization, documentation, reconciliation, security, and separation of duties are designed to ensure the integrity of financial and accounting information, promote accountability, and prevent fraud. All OCTA employees are responsible for knowledge of, and compliance with, OCTA policies and procedures that outline control activities and requirements. No OCTA employee shall engage in activities resulting in an override of controls outlined in OCTA policies and procedures.

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J. Duty to Report

Each OCTA employee is obligated to report to his or her supervisor, the Internal Auditor, Human Resources staff, the Chief Executive Officer (CEO), or the General Counsel any facts made known to the employee which show that an OCTA contractor or OCTA employee has engaged in business practices regarding an OCTA matter which appears to be unethical, or which violates OCTA policy, or applicable state or federal law.

K. Whistleblower Protection

OCTA is committed to fair treatment of all its employees and recognizes its responsibility under state and federal law to protect from punishment and harassment any person who reports a potential ethics issue, whether or not the allegation is found to have merit. The report may be made anonymously. OCTA shall not take any act nor threaten any action against any OCTA employee as a reprisal for making a report under state or federal whistleblower laws, unless the report was made, or the information was disclosed with the knowledge that it was false or with willful disregard for its truth or falsity.

L. Ethics Hotline

OCTA shall maintain a telephonen Ethics Hotline for any employee, vendor, or member of the public to anonymously report any suspected fraud, waste, abuse, and illegal or unethical behavior. The report shall be confidential. Reports to the Ethics Hotline will be administered by the Internal Audit Department for review and investigation by the appropriate department. For information on the options for filing a report through the Ethics Hotline, go to http://octa.net/About-OCTA/Who-We-Are/Internal-Audit/Fraud-Hotline/ or call 877-315-9918.

- M. Product Endorsement and Participation in Case Studies
 - Employees, in their capacity as an OCTA employee, shall not endorse a product, service, or company or comment upon that product, service, or company if it is the intent of the solicitor of the endorsement, or of the vendor or manufacturer of that product or service, to use such comments for purposes of advertisement, marketing or sales, without prior consent of the CEO or designee. OCTA Board Mmembers, in their capacity as an OCTA Board Mmember, are discouraged from endorsing a product, service, or company for purposes of advertisement, marketing or sales.
 - 2. Employees, in their capacity as an OCTA employee, are not prohibited from responding to inquiries regarding the effectiveness of products or services used by OCTA unless the employee is aware that it is the inquirer's intention to use those comments for purposes of advertisement, marketing, or sales.
 - Employees, in their capacity as an OCTA employee, shall not participate in a case study of products or services for advertisement, marketing, or sales purposes by any person or organization outside of OCTA, without the consent of their e Executive d Director.

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M. Duty to Cooperate

OCTA employees, in their capacity as an OCTA employee, shall cooperate fully with judicial bodies and courts, and with workplace investigative personnel_{\pm}; appear before them upon request_{\pm}; and answer all questions truthfully, concerning their conduct in office or the performance of their official duties or matters within their knowledge pertaining to the property or affairs of OCTA.

VI. EXCEPTIONS

- A. The provisions of Government Code Section 87406.3 shall apply with equal force and effect to each individual who is appointed as a public member of the OCTA Board of Directors (Board), the same as members of the Board of Directors who are elected officials.
- B. This means that a public member of the Board of Directors shall not, for a period of one year after leaving that office, act as an agent or attorney for or otherwise represent for compensation any other person by communicating with an OCTA employee if the communication is made for the purpose of influencing administrative or legislative action, or proceeding involving the issuance, amendment, awarding, or revocation of a permit, license, grant or contract, or the sale or purchase of goods or property.

VII. PROVISIONS AND CONDITIONS

- A. All OCTA employees have a responsibility to conduct OCTA's business in compliance with this policy. The General Counsel shall investigate alleged violations of this policy. In the event the General Counsel determines that a violation has occurred, the General Counsel's finding shall be reported to the CEO who shall take such action, which may include notification to the Board of Directors, as is appropriate under the circumstances. Any violation of a provision of this policy which is based upon a state or federal law may also be enforced by any appropriate enforcement agency.
- **B.** A violation of this policy by an OCTA employee may result in the imposition of discipline, up to and including dismissal. The appropriate discipline will be determined by the employee's supervisor in consultation with the division executive director of the organization unit in which the employee works and the Executive Director of Human Resources and Organizational DevelopmentPeople and Community Engagement. The discipline imposed will depend upon the severity of the violation and may be progressive unless the violation is determined to be so serious as to warrant more severe action initially. The imposition of discipline by OCTA for a violation of this policy, when such violation is also a violation of state or federal law, shall not affect the ability of any appropriate prosecutorial agency to seek the imposition of any penalty allowed by law for such violation.
- C. Acknowledgement of Receipt of Code of Conduct New OCTA employees will receive a copy of this policy upon commencement of employment and will sign an

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acknowledgement of receipt. Thereafter, all employees will receive a copy of this policy once every two-(2) years, and they will be required to sign an acknowledgement of receipt.

VIII. RELATED DOCUMENTS

- A. Code of Conduct Policy Acknowledgement Form
- B. Workplace Harassment & Discrimination Prevention Policy (EO-HR-400WHDP)

END OF POLICY



October 10, 2022

To: Members of the Board of Directors

From: Andrea West, Interim Clerk of the Board Max

Subject: Amendments to the Master Plan of Arterial Highways

Regional Planning and Highways Committee Meeting of October 3, 2022

Present:Directors Bartlett, Foley, Harper, Muller, and MurphyAbsent:Directors Chaffee and Delgleize

Committee Vote

This item was passed by the Members present.

Director Foley was not present to vote on this item.

Committee Recommendations

- A. Conditionally approve the following amendments to the Master Plan of Arterial Highways for the facilities listed below within the City of Anaheim:
 - 1. Remove Douglass Road, a secondary (four lane, undivided) arterial, between Cerritos Avenue and Katella Avenue from the Master Plan of Arterial Highways network.
 - 2. Remove Cerritos Avenue, a secondary (four lane, undivided) arterial, between Sunkist Street and Douglass Road from the Master Plan of Arterial Highways network.
 - 3. Add River Road as a primary (four lane, divided) arterial from Katella Avenue to Ball Road to the Master Plan of Arterial Highways network.

The proposed amendment will become final, contingent upon the Orange County Transportation Authority receiving documentation that the City of Anaheim has amended its general plan and has complied with the requirements of the California Environmental Quality Act.



If the City of Anaheim does not update its general plan within three years to reflect the Master Plan of Arterial Highways amendment, the contingent approval of this requested amendment will expire but can be returned to the Orange County Transportation Authority Board of Directors for reconsideration and action.

If the original proposed Master Plan of Arterial Highways amendment is modified as a result of the California Environmental Quality Act and/or general plan amendment process, the modified Master Plan of Arterial Highways amendment shall be returned to the Orange County Transportation Authority Board of Directors for consideration and action.

- B. Direct the Executive Director of Planning, or his designee, to file a Notice of Exemption from the California Environmental Quality Act in support of the Master Plan of Arterial Highways amendment.
- C. Receive and file a status report on the active Master Plan of Arterial Highways amendments.



October 3, 2	2022 Mbb
То:	Regional Planning and Highways Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Amendments to the Master Plan of Arterial Highways

Overview

The Orange County Transportation Authority administers the Master Plan of Arterial Highways, including the review and approval of amendments requested by local agencies. The City of Anaheim has requested an amendment to the Master Plan of Arterial Highways that is recommended for approval. An update on the conditionally approved Master Plan of Arterial Highways amendments is also provided.

Recommendations

- Α. Conditionally approve the following amendments to the Master Plan of Arterial Highways for the facilities listed below within the City of Anaheim:
 - 1. Remove Douglass Road, a secondary (four-lane, undivided) arterial, between Cerritos Avenue and Katella Avenue from the Master Plan of Arterial Highways network.
 - 2. Remove Cerritos Avenue, a secondary (four-lane, undivided) arterial, between Sunkist Street and Douglass Road from the Master Plan of Arterial Highways network.
 - Add River Road as a primary (four-lane, divided) arterial from 3. Katella Avenue to Ball Road to the Master Plan of Arterial Highways network.

The proposed amendment will become final, contingent upon the Orange County Transportation Authority receiving documentation that the City of Anaheim has amended its general plan and has complied with the requirements of the California Environmental Quality Act.

If the City of Anaheim does not update its general plan within three years to reflect the Master Plan of Arterial Highways amendment, the contingent approval of this requested amendment will expire but can be returned to the Orange County Transportation Authority Board of Directors for reconsideration and action.

If the original proposed Master Plan of Arterial Highways amendment is modified as a result of the California Environmental Quality Act and/or general plan amendment process, the modified Master Plan of Arterial Highways amendment shall be returned to the Orange County Transportation Authority Board of Directors for consideration and action.

- B. Direct the Executive Director of Planning, or his designee, to file a Notice of Exemption from the California Environmental Quality Act in support of the Master Plan of Arterial Highways amendment.
- C. Receive and file a status report on the active Master Plan of Arterial Highways amendments.

Background

The City of Anaheim (City) is proposing roadway changes near the Honda Center and the Anaheim Regional Transportation Intermodal Center (ARTIC) to improve traffic and pedestrian circulation and serve new development. The new development includes a mix of entertainment, office, retail, restaurant, and residential uses within a half mile of ARTIC. Roadway modifications are proposed to enhance circulation, which requires an amendment to the Master Plan of Arterial Highways (MPAH) network. The study area and project site map is provided in Attachment A.

The City has submitted a letter requesting the following changes to the MPAH:

- Remove Douglass Road between Cerritos Avenue and Katella Avenue,
- Remove Cerritos Avenue between Sunkist Street and Douglass Road, and
- Add a new north-south roadway named River Road, as a primary arterial, between Katella Avenue and Ball Road.

The proposed MPAH amendment has been reviewed by the Orange County Transportation Authority (OCTA) staff. Details on the requested amendment and an update on active MPAH amendments are provided below. Staff reviewed the traffic analysis provided by the City and concluded that the requested MPAH amendments are appropriate from a long-range planning perspective. Additionally, future traffic volumes appear to be accommodated with the proposed changes and are forecasted to remain at generally acceptable levels of service (LOS). As such, staff has determined that the City has satisfied MPAH amendment requirements and recommends approval of the MPAH amendment request.

Deletion – Douglass Road and Cerritos Avenue

Removal of Douglass Road between Katella Avenue and Cerritos Avenue would create a "stub" for the eastern end of Cerritos Avenue, thus eliminating its connection to the MPAH system. Therefore, staff is recommending the approval of the City's request to remove Cerritos Avenue between Sunkist Street and Douglass Road to be consistent with the MPAH guidelines. Removal of the two roadways from the MPAH does not significantly impact the surrounding MPAH network.

Addition – River Road (New Roadway)

The new roadway, River Road, will connect with Phoenix Club Drive and extend the primary arterial MPAH classification to Ball Road. The existing street name, Phoenix Club Drive, will be changed to River Road, including both the existing and new segments. This planned roadway will include four-travel lanes divided by a two-way left-turn lane. Based on the traffic impact analysis report, future average daily traffic on River Road is anticipated to be approximately 26,100 daily trips. This is below the 30,000 average daily trip threshold identified in the MPAH guidelines for designation as primary arterials. As a result, the proposed classification provides sufficient capacity to accommodate the forecasted traffic levels and meets LOS standards.

The amendments request submitted by the City are provided in Attachment B and a map of the proposed changes to the MPAH is provided in Attachment C. The City of Orange reviewed the traffic study and provided a letter of support for the requested MPAH amendments (Attachment D).

California Environmental Quality Act (CEQA)

Amendments to the MPAH are exempt from the CEQA review. As such, if the Board approves the recommendations, OCTA will file a Notice of Exemption from CEQA in support of the proposed amendment to the MPAH.

MPAH Amendment Status Update

There are currently 15 active amendments proposed for the MPAH. These amendments are detailed in Attachment E. Many of the remaining amendments are awaiting local action to amend their respective general plans. Others are either under review, are in the cooperative study process, are pending resolution of issues with other agencies, or are awaiting refinement of development plans.

Summary

The City has requested a amendments to the MPAH. Based upon the information provided by the City, the requirements of the MPAH have been satisfied, and staff recommends Board approval of the amendments. requested. A summary of active MPAH amendments is also provided for the Board review.

Attachments

- A. Project Study Area and Project Site
- B. Letter from Rudi Emami, Director of Public Works, City of Anaheim, to Kurt Brotcke, Orange County Transportation Authority, Dated July 29, 2022, RE: City of Anaheim Master Plan of Arterial Highways Amendment Request Revised
- C. Anaheim MPAH Amendments
- D. Letter from Christopher S. Cash, Director of Public Works, City of Orange, to Kurt Brotcke, Orange County Transportation Authority, Dated July 28, 2022, RE: City of Anaheim Master Plan of Arterial Highways Amendment – City of Orange Letter of Support
- E. Status Report on Pending Master Plan of Arterial Highways Amendments

Prepared by:

Ivy Hang Senior Transportation Analyst (714) 560-5684

Approved by:

Kia Mortazavi Executive Director, Planning (714) 560-5741





Project Study Area and Project Site



ATTACHMENT B



City of Anaheim DEPARTMENT OF PUBLIC WORKS

July 29, 2022

Mr. Kurt Brotcke Orange County Transportation Authority 550 S. Main Street Orange, CA 92868

RE: City of Anaheim Master Plan of Arterial Highways Amendment Request Revised

Dear Mr. Brotcke:

As indicated in the City of Anaheim's (City) original Master Plan of Arterial Highways (MPAH) amendment request letter dated April 15, 2022 (attached), the City has requested Orange County Transportation Authority (OCTA) approval of various MPAH circulation changes in support of the OCVibe development.

After discussions with OCTA staff, the City has opted to revise its original MPAH amendment request. Listed below are the City's final proposed MPAH revisions in support of the OCVibe development.

- Remove Douglass Road north of Katella Avenue to Cerritos Avenue;
- Add a new north-south public roadway known as River Road, as a primary arterial, on the easterly side of the OCVibe development from Katella Avenue north (via Phoenix Club Drive) to Ball Road; and
- Remove Cerritos Avenue from Sunkist Street to Douglass Road.

Thank you for allowing the City the opportunity to clarify this MPAH amendment request. Please note that the City remains committed to pursuing this MPAH amendment request as expeditiously as possible. As such, attached to this letter is a letter of support from the City of Orange.

Should have any questions regarding this letter or the attached documents, please feel free to contact me at (714) 765-5065.

Sincerely,

Rudy Emami Director of Public Works

Attachments

200 S. Anaheim Blvd., Suite 276 Anaheim, CA 92805

TEL (714) 765-5176 FAX (714) 765-5225 www.anaheim.net

Anaheim MPAH Amendments

ATTACHMENT C

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W:\Requests\PDCS\SP\PA\MPAH\mxd\AnaheimAmendments_2022-0829.mxd



CITY OF ORANGE

PUBLIC WORKS DEPARTMENT

ENGINEERING DIVISION (714) 744-5544 FAX: (714) 744-5573

MAINTENANCE DIVISION (714) 532-6480 FAX: (714) 532-6444

TRAFFIC DIVISION (714) 744-5540 FAX: (714) 744-5573

www.cityoforange.org

WATER DIVISION (714) 288-2475 FAX: (714) 744-2973

July 28, 2022

Mr. Kurt Brotcke Orange County Transportation Authority 600 S. Main Street Orange, CA 92868

RE: City of Anaheim Master Plan of Arterial Highways Amendment - City of Orange Letter of Support

Dear Mr. Brotcke:

The City of Orange (Orange) has reviewed the City of Anaheim's (Anaheim's) request to amend the Orange County Master Plan of Arterial Highways (MPAH) as part of the proposed OCVibe development, which includes the following components:

- Removal of Cerritos Avenue from Sunkist Street to Douglass Road from the MPAH. The actual facility will continue to exist and will remain on Anaheim's Circulation Element:
 - An extension of Cerritos Avenue from Douglass Road to River Road will also 0 be constructed as a private road with a public access easement. However, this facility will not be reflected on the MPAH.
- Removal of Douglass Road from Katella Avenue to Cerritos Avenue from the MPAH. A portion of Douglas Road from proposed Stanley Cup Way (private road) to Cerritos Avenue will continue to exist but will be maintained as a private road with a public access easement.
- Addition of a new Primary Arterial known as River Road from Katella Avenue to Ball . Road (portion of the road currently exists at Phoenix Club Drive)

Orange is supportive of these proposed changes to MPAH and Anaheim's Circulation Element.

Should you have any questions please feel free to contact Larry Tay, City Traffic engineer at (714)744-5534 or myself at (714) 744-5545.

Sincerely

Christopher S. Cash **Director of Public Works**

C: Charlie Larwood, OCTA Greg Nord, OCTA Rudy Emami, Anaheim

Carlos Castellanos, Anaheim Rafael Cobian, Anaheim Joe Alcock, Anaheim

300 E. CHAPMAN AVENUE

ATTACHMENT E

Status Report on Pending Master Plan of Arterial Highways Amendments

#	Jurisdiction	Street	From	То	Type of Amendment	Status
1	Brea / County of Orange	Tonner Canyon Road	Brea Canyon Road	Planned Valencia Avenue	Delete	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
2	Brea / County of Orange	Valencia Avenue	Carbon Canyon Road	Planned Tonner Canyon Road	Delete	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
3	Costa Mesa	Bluff Road	19th Street	Victoria Street	Delete	On hold pending final consensus on Banning Ranch circulation plan.
4	Costa Mesa	19th Street	Placentia Avenue	West City Limit	Reclassify from primary to divided collector	On hold pending coordination with City of Newport Beach general plan update.
5	County of Orange / Lake Forest	Santiago Canyon Road	SR-241 NB Ramp	Live Oak Canyon	Reclassify from primary to collector	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
6	County of Orange / Irvine	Jeffrey Road	SR-241	Santiago Canyon Road	Delete	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
7	County of Orange	Black Star Canyon	Silverado Canyon Road	Orange County/ Riverside County Line	Delete	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
8	Santa Ana / Orange	Fairhaven Avenue	Grand Avenue	Tustin Avenue	Reclassify from secondary to divided collector	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
9	Yorba Linda / Anaheim	Yorba Linda Boulevard	SR-91 WB Off-Ramp	La Palma Avenue	Reclassify from primary to asymmetric major	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
10	Yorba Linda / Anaheim	Weir Canyon Road	SR-91 WB Off-Ramp	SR-91 EB On-Ramp	Reclassify from primary to major	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
11	Yorba Linda / Anaheim	Savi Ranch Parkway	Pullman Street	Old Canal Road	Add to MPAH	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.

Status Report on Pending Master Plan of Arterial Highways Amendments

#	Jurisdiction	Street	From	То	Type of Amendment	Status
12	Yorba Linda / Anaheim	Old Canal Road/Pullman Street	Savi Ranch Parkway	Savi Ranch Parkway	Add to MPAH	The amendment was conditionally approved by the Board. Waiting for documentation confirming completion of CEQA and general plan change.
13	Anaheim	Douglass Road	Cerritos Avenue	Katella Ave	Delete	Amendment is being presented to the Board for consideration.
14	Anaheim	Cerritos Avenue	Sunkist Street	Douglass Road	Delete	Amendment is being presented to the Board for consideration.
15	Anaheim	River Road (New Road)	Ball Road	Katella Avenue	Add to MPAH	Amendment is being presented to the Board for consideration.
NOM	Costa Mesa / Fountain Valley/ Huntington Beach	Garfield Avenue/ Gisler Avenue Crossing over the Santa Ana River	Santa Ana River Westbank	Santa Ana River Eastbank	Reclassify from secondary to right-of-way reserve status	The cities of Costa Mesa, Fountain Valley, Huntington Beach, and OCTA entered into an MOU (C-6-0834). Reasonable progress has been made on the implementation of 19 of the 25 mitigation measures that were specified. All improvements are required to be completed by 2025, at which time OCTA will revisit the designation of the Garfield Avenue/Gisler Avenue Bridge.

OCTA - Orange County Transportation Authority

Board – Board of Directors

MPAH – Master Plan of Arterial Highways

MOU – Memorandum of understanding

CEQA - California Environmental Quality Act

NB – Northbound

WB - Westbound

EB – Eastbound

SR-241 – State Route 241 SR-91 – State Route 91



October 10, 2022

- To: Members of the Board of Directors
- From: Andrea West, Interim Clerk of the Board Max
- Subject: Amendment to Agreement for Program Management Consultant Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

Regional Planning and Highways Committee Meeting of October 3, 2022

Present:Directors Bartlett, Foley, Harper, Muller, and MurphyAbsent:Directors Chaffee and Delgleize

Committee Vote

This item was passed by the Members present.

Director Foley was not present to vote on this item.

Committee Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 34 to Agreement No. C-2-1513 between the Orange County Transportation Authority and Parsons Transportation Group, Inc., in the amount of \$5,367,969, for additional program management consultant services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605, and to extend the term of the agreement for an additional 13 months through June 30, 2024. This will increase the maximum cumulative obligation of the agreement to a total contract value of \$138,170,682.



October 3, 2022

To: Regional Planning and Highways Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Amendment to Agreement for Program Management Consultant Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

Overview

On December 10, 2012, the Orange County Transportation Authority Board of Directors selected Parsons Transportation Group, Inc., to provide program management consultant services for the design-build delivery of the Interstate 405 Improvement Project from State Route 73 to Interstate 605 for a term of six and a half years. An amendment to the existing agreement is needed to extend the term and provide additional services through the completion and closeout of the Interstate 405 Improvement Project.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 34 to Agreement No. C-2-1513 between the Orange County Transportation Authority and Parsons Transportation Group, Inc., in the amount of \$5,367,969, for additional program management consultant services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605, and to extend the term of the agreement for an additional 13 months through June 30, 2024. This will increase the maximum cumulative obligation of the agreement to a total contract value of \$138,170,682.

Discussion

The Orange County Transportation Authority (OCTA), in cooperation with the California Department of Transportation (Caltrans) and the cities of Costa Mesa, Fountain Valley, Huntington Beach, Seal Beach, and Westminster (Cities), is implementing the Interstate 405 (I-405) Improvement Project from State Route 73 (SR-73) to Interstate 605 (I-605) (Project). The Project will add one general purpose lane in each direction from Euclid Street to I-605, consistent with Measure M2 Project K, and will add an additional lane in each

Amendment to Agreement for Program Management Consultant Page 2 Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

direction that will combine with the existing high-occupancy vehicle lane to provide dual express lanes in each direction on I-405 from SR-73 to I-605, otherwise known as the 405 Express Lanes.

On March 3, 2014, OCTA entered into an agreement with Parsons Transportation Group, Inc., (Parsons) to provide program management consultant (PMC) services to support OCTA in the implementation of the Project. These services include project management and administration, design services and preliminary project development, right-of-way (ROW) support services, design-build (DB) procurement, contracts and third-party agreements, oversight of tolling elements for the Project, and oversight of DB construction. The services involve extensive ongoing coordination and communications between all Project stakeholders while meeting the Project schedule, cost, and administrative requirements.

The current term of the PMC contract expires on May 31, 2023. The PMC contract needs to be extended to June 30, 2024, to provide additional support services to support the Project's revised construction substantial completion date of October 31, 2023, as well as assist with Project closeout, which will extend approximately eight months past the substantial completion date for a project of this magnitude. A significant portion of the cost increase is due to the extended time the PMC will be providing services on the Project beyond what was originally assumed in the prior level of effort (LOE) estimate. There have also been additional specific efforts requested and needed to support the Project which include:

- Additional PMC efforts to assist with the implementation of the back-office system and customer service center operations for the 405 Express Lanes. The PMC is assisting OCTA and the tolling contractor related to an accelerated schedule to meet operational dates for tolling, which includes accelerated development of software, systems, and technical requirements. This is being accomplished with added PMC staff efforts to provide support in numerous workshops and accelerated reviews to meet the Project schedule and minimize potential risks.
- OCTA is preparing to restore the former Sit 'n Sleep property located directly north of the I-405 freeway at Magnolia Street for leasing opportunities. The ground lease for this property was acquired during the ROW acquisition process for the Project. The PMC is providing additional design, plans, permits, and construction management for these improvements.
- The construction of the OCTA I-405 traffic operations center required additional design and coordination support to adjust to the site conditions of the existing facility and the improvements, which were not anticipated in the original LOE.

Amendment to Agreement for Program Management Consultant Page 3 Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

• Additional ROW and surveying services are needed for the development of specific ROW closeout documentation that was not contemplated in the original LOE for this contract. This documentation is a requirement for ROW and utility closeout packages with Caltrans.

The cost of this amendment is included in the Project support contingency of the \$2.08 billion Board of Directors (Board)-approved Project budget.

Procurement Approach

The original procurement was handled in accordance with OCTA's Board-approved procedures for architectural and engineering services, which conform to both state and federal laws. On December 10, 2012, the Board approved an agreement with Parsons for a term of six and a half years to provide PMC services. The contract was issued with a maximum obligation of \$57,059,657. This agreement has been previously amended as shown in Attachment A.

OCTA staff and Parsons reviewed and agreed to the LOE for the additional PMC services required through June 30, 2024. Staff found Parsons' cost proposal, in the amount of \$5,367,969, to be fair and reasonable relative to the negotiated LOE and the independent cost estimate prepared by the OCTA project management team. Proposed Amendment No. 34 to Agreement No. C-2-1513, in the amount of \$5,367,969, will bring the total contract value to \$138,170,682.

Fiscal Impact

Funding for this amendment is included in OCTA's Fiscal Year 2022-23 Budget, Capital Programs Division, account nos. 0017-9085-FK101-TZF and 0037-9018-A9510-TZF, and is funded with a combination of federal, state, and local funds.

Summary

Staff requests Board of Directors' approval to authorize the Chief Executive Officer to negotiate and execute Amendment No. 34 to Agreement No. C-2-1513 between the Orange County Transportation Authority and Parsons Transportation Group, Inc., in the amount of \$5,367,969, for additional program management consultant services, and extend the term of the agreement through June 30, 2024. This will increase the maximum obligation of the agreement to a total contract value of \$138,170,682.

Amendment to Agreement for Program Management Consultant Page 4 Services for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

Attachment

A. Parsons Transportation Group Inc., Agreement No. C-2-1513 Fact Sheet

Prepared by:

Mills

Jeff Mills, P.E. Senior Program Manager (714) 560-5925

Pi-Venal

Pia Veesapen Director, Contracts Administration and Materials Management (714) 560-5619 Approved by:

Ju SAL

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646

Parsons Transportation Group, Inc. Agreement No. C-2-1513 Fact Sheet

- 1. December 10, 2012, Agreement No. C-2-1513, \$57,059,657, approved by the Board of Directors (Board).
 - Agreement was executed March 4, 2013, to provide program management consultant (PMC) services for the Interstate 405 Improvement Project (Project).
- 2. May 7, 2014, Amendment No. 1 to Agreement No. C-2-1513, \$0, approved by Contracts Administration and Materials Management (CAMM) Department.
 - To revise key personnel and update hourly rate.
- 3. July 23, 2014, Amendment No. 2 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise hourly rates for the prime consultant and subconsultants to list field and office hourly billing rates where applicable and additional classifications.
 - To clarify agreement terms and conditions relative to preparation and payment of invoices.
- 4. October 1, 2014, Amendment No. 3 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise hourly rates for prime consultant and subconsultants.
- 5. October 2, 2014, Amendment No. 4 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To add Delcan Corporation (Delcan) as a subconsultant to assist with intelligent transportation systems work requirements of the Project.
- 6. February 9, 2015, Amendment No. 5 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise hourly rate schedules to add personnel for subconsultants.
- 7. July 13, 2015, Amendment No. 6 to Agreement No. C-2-1513, \$29,981,056, approved by the Board.
 - To provide additional PMC services to support the Project preferred alternative.
 - To extend the term of the agreement to July 31, 2022, to allow for completion of the expanded scope of work.

- 8. July 7, 2016, Amendment No. 7 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise hourly rate schedules to add and replace key personnel for the prime consultant.
- 9. January 17, 2017, Amendment No. 8 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise hourly rate schedules for a subconsultant.
 - To incorporate Delcan under prime consultant due to the acquisition of Delcan by prime consultant as of January 2015.
- 10. February 9, 2017, Amendment No. 9 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To add a subconsultant to provide scheduling services for the Project.
- 11. May 30, 2017, Amendment No. 10 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To modify key personnel for the prime and subconsultant HNTB.
 - To add disadvantaged business enterprise subconsultant The Alliance Group.
- 12. July 17, 2017, Amendment No. 11 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To update the indemnification language in the agreement regarding Parsons' support of the Transportation Innovation Finance and Innovation Act (TIFIA) loan requirements.
- 13. June 12, 2017, Amendment No. 12 to Agreement No. C-2-1513, \$6,000,000, approved by the Board.
 - To provide additional PMC services to reduce project risks and costs associated with the right-of-way (ROW) impacts and utility relocations.
 - To provide the financial and document control systems required to support the financial and document control systems required to support the TIFIA loan.
 - To provide procurement management oversight, using a combined toll systems and operations approach for the 91 Express Lanes and 405 Express Lanes.
 - To add new subconsultant Ares Prism to provide cost management system.
 - To add new subconsultant Rosendin Electric to provide fiber testing support for the 91 Express Lanes.

- 14. October 12, 2017, Amendment No. 13 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To modify key personnel and add other personnel for prime consultant and subconsultant.
- 15. November 16, 2017, Amendment No. 14 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To modify key personnel for prime consultant.
- 16. June 7, 2018, Amendment No. 15 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 17. July 30, 2018, Amendment No. 16 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To add new subconsultant Progressive Transport Solutions, LLC, for maintenance of traffic and public outreach services.
- 18. August 14, 2018, Amendment No. 17 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 19. October 8, 2018, Amendment No. 18 to Agreement No. C-2-1513, \$39,762,000, approved by the Board.
 - To provide design-build contract compliance services.
 - To provide additional support to ensure Project environmental compliance.
 - To provide additional construction management services.
 - To provide project controls and document controls services.
 - To provide value engineering studies.
 - To provide engineering support and Project stakeholder support.
 - To provide toll-related engineering services for the design of the 405 Express Lanes Traffic Operations Center (TOC) and server room and tenant improvements, and 91 Express Lanes westbound toll read site.
- 20. January 10, 2019, Amendment No. 19 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise agreement's Exhibit D Milestones for Release of Retention.

- 21. February 20, 2019, Amendment No. 20 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for subconsultants.
- 22. April 17, 2019, Amendment No. 21 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise schedules for personnel and other direct costs for a subconsultant.
- 23. June 20, 2019, Amendment No. 22 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for a subconsultant.
- 24. July 2, 2019, Amendment No. 23 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 25. September 24, 2019, Amendment No. 24 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for subconsultants.
- 26. November 26, 2019, Amendment No. 25 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant.
- 27. September 9, 2020, Amendment No. 26 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise schedules for personnel and other direct costs for prime consultant and subconsultants.
- 28. November 24, 2020, Amendment No. 27 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants
- 29. November 4, 2021, Amendment No. 28 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant.

- 30. May 25, 2021, Amendment No. 29 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise other direct costs schedules for subconsultants.
- 31. August 4, 2021, Amendment No. 30 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 32. October 6, 2021, Amendment No. 31 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 33. June 16, 2022, Amendment No. 32 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant and subconsultants.
- 34. August 5, 2022, Amendment No. 33 to Agreement No. C-2-1513, \$0, approved by CAMM Department.
 - To revise personnel schedules for prime consultant.
- 35. October 10, 2022, Amendment No. 34 to Agreement No. C-2-1513, \$5,367,969, pending approval by the Board.
 - To provide additional PMC services to support the revised construction substantial completion date of October 31, 2023, and assist with Project closeout activities.
 - To assist with the implementation of the 405 Express Lanes back-office system and customer service center operations.
 - To provide additional design, plans, permits, and construction management services for necessary improvements to the former Sit n' Sleep property.
 - To provide additional design and coordination support related to the 405 Express Lanes TOC.
 - To provide additional ROW and surveying services needed for Project closeout documentation.

Total funds committed to Parsons Transportation Group, Inc., after approval of Amendment No. 34 to Agreement No. C-2-1513: \$138,170,682.



October 10, 2022

- To: Members of the Board of Directors
- From: Andrea West, Interim Clerk of the Board Max
- Subject: Cooperative Agreement with the California Department of Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road

Regional Planning and Highways Committee Meeting of October 3, 2022

Present:Directors Bartlett, Foley, Harper, Muller, and MurphyAbsent:Directors Chaffee and Delgleize

Committee Vote

This item was passed by the Members present.

Director Foley was not present to vote on this item.

Committee Recommendations

- A. Authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-2-2807 between the Orange County Transportation Authority and the California Department of Transportation, in the amount of \$12,335,000, for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.
- B. Authorize the use of up to \$0.79 million in Surface Transportation Block Grant funds for design services for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road in lieu of Measure M2 funding.
- C. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.



October 3, 2022

- To: Regional Planning and Highways Committee
- *From:* Darrell E. Johnson, Chief Executive Officer
- **Subject:** Cooperative Agreement with the California Department of Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road

appl

Overview

The Orange County Transportation Authority proposes to enter into a cooperative agreement with the California Department of Transportation for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.

Recommendations

- A. Authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-2-2807 between the Orange County Transportation Authority and the California Department of Transportation, in the amount of \$12,335,000, for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.
- B. Authorize the use of up to \$0.79 million in Surface Transportation Block Grant funds for design services for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road in lieu of Measure M2 funding.
- C. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.

Discussion

The Orange County Transportation Authority (OCTA), in partnership with the California Department Transportation (Caltrans), is implementing the Interstate 5 (I-5) Improvement Project between State Route 73 (SR-73) and

Cooperative Agreement with the California Department of Page 2 Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road

El Toro Road (Project). The Project adds general purpose lanes and other improvements in both directions of the I-5 from north of SR-73 to El Toro Road.

The Project is currently being constructed in three segments with the following Project limits:

- Segment 1 extends from north of SR-73 to Oso Parkway. Construction began on March 10, 2020, and is anticipated to be complete in 2024.
- Segment 2 begins at Oso Parkway and ends at Alicia Parkway. Construction began on May 29, 2019, and is anticipated to be complete in 2024.
- Segment 3 extends from Alicia Parkway to El Toro Road. Construction began on January 4, 2021, and is anticipated to be complete in 2024.

All three segments will require replacement planting and a three-year plant establishment period which will commence upon construction completion. Replacement planting will include areas where ground cover and trees were cleared and otherwise impacted during construction of the three segments of the Project. Plant establishment is the period that allows newly installed plant material to reach a state of maturity that will allow for minimal maintenance in the future. The plant establishment period typically includes replacement of dead or damaged plant material, weed and pest control, irrigation operation and repair, and other activities required to ensure the long-term survival of plant material.

It is standard practice for Caltrans to separate the replacement planting and plant establishment period work into a separate follow-on contract, which is relatively minor in scope and cost in relation to the major roadway work. During the design phase of the Project, OCTA and Caltrans mutually agreed to exclude the replacement planting and plant establishment work from the roadway construction contracts due to a lengthy three-year plant establishment period that is required by Caltrans. The plant establishment work would unnecessarily retain the roadway contractor for three years and potentially result in higher or unbalanced bid prices.

This cooperative agreement will include the design, right-of-way support, advertisement, award, and administration of the replacement planting landscape project, including the three-year plant establishment period per Caltrans requirements, for all three segments. The construction completion of the freeway improvement projects is scheduled for 2024. In order for the replacement planting contractor to be on board by 2024, a cooperative agreement is required between Caltrans and OCTA to document the obligations of each party for the I-5 Replacement Planting Project, and to initiate the preparation and packaging of the design for the contract documents.
Cooperative Agreement with the California Department of *Page 3* Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road

OCTA proposes to enter into a cooperative agreement with Caltrans to define the roles and responsibilities of both agencies. As the implementing agency for design and construction of the replacement planting project, Caltrans will be responsible for the design, right-of-way support (utility coordination), advertisement, award, and administration of the replacement planting project. The cost for the development of the final contract documents, advertisement, and award is estimated in the amount of \$790,000. The capital construction cost is estimated to be \$10,595,000, and includes replacement planting, installation of irrigation systems, testing, repairs, and maintenance. Caltrans will provide all construction management support for the Project in the amount of \$950,000. OCTA will reimburse Caltrans \$5,545,000 in local Measure M2 funds for the construction capital component of the Project, and the balance will be funded with federal and state funds that Caltrans will draw down directly.

Fiscal Impact

The Project is partially included in OCTA's Fiscal Year 2022-23 Budget, Capital Programs Division, Account No. 0017-9084-FC107-03E and is funded with federal Surface Transportation Block Grant, State Transportation Improvement Program, and local Measure M2 funds. The remaining funding will be budgeted in subsequent fiscal years to fund the work. This Project is listed as Project C in the Measure M2 (M2) Next 10 Delivery Plan and the use of Surface Transportation Block Grant funding in lieu of M2 funding is consistent with the OCTA Board of Directors-approved Capital Programming Policy. The Capital Funding Program includes a summary of how OCTA's capital projects are currently funded along with the proposed changes in this report (Attachment A).

Summary

Staff requests Board of Directors' approval for the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-2-2807 between the Orange County Transportation Authority and the California Department of Transportation, in the amount of \$12,335,000, for the Interstate 5 Replacement Planting Project between State Route 73 and El Toro Road.

Cooperative Agreement with the California Department of Page 4 Transportation for the Interstate 5 Replacement Planting Project Between State Route 73 and El Toro Road

Attachment

A. Capital Funding Program Report

Prepared by:

Niall Barrett, P.E. Program Manager (714) 560-5879

Pi-Veron B.

Pia Veesapen Director, Contracts Administration and Materials Management (714) 560-5619

Approved by:

And Mr.

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646



Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - October 10, 2022

State Highway Project											
			Federal Funds			State Funds			Local Funds		
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 from SR-55 to SR-57, add one HOV lane each direction	A	\$41,500	\$36,191							\$5,309	
I-5 widening, I-405 to Yale Avenue (Segment 1)	В	\$230,482	\$52,357			\$95,338	\$33,395			\$49,392	
I-5 widening, Yale Avenue to SR-55 (Segment 2)	В	\$41,351	\$32,527							\$8,824	
I-5 widening, Alicia Parkway to El Toro Road (Segment 3)	С	\$181,327	\$49,897		\$4,728		\$9,388			\$117,314	
I-5 widening, Oso Parkway to Alicia Parkway (Segment 2)	С	\$206,695	\$48,676		\$7,921					\$150,098	
I-5 widening, SR-73 to Oso Parkway (Segment 1)	С	\$213,267	\$28,167		\$6,433	\$91,977		\$29,832		\$56,858	
I-5, SR-73 to El Toro Road landscaping/replacement planting ¹	С	\$12,335	\$790			\$6,000				\$5,545	
I-5/El Toro Interchange	D	\$9,713	\$9,213							\$500	
SR-55 (I-5 to SR-91)	F	\$16,000	\$8,359		\$2,641					\$5,000	
SR-55 widening between I-405 and I-5	F	\$505,720	\$160,500		\$41,900	\$80,000	\$140,000			\$83,320	
SR-57 Orangewood Avenue to Katella Avenue	G	\$9,327	\$2,500		\$3,240					\$3,587	
SR-57 truck climbing lane phase II: Lambert Road to LA County Line	G	\$6,500				\$6,500					
SR-91, Acacia Avenue to La Palma Avenue (Segment 3)		\$18,171	\$1,770							\$30	\$16,371
SR-91, La Palma Avenue to SR-55 (Segment 2)	I	\$46,314	\$3,460							\$40	\$42,814
SR-91, SR-55 to Lakeview Avenue (Segment 1)	I	\$15,779	\$1,770							\$30	\$13,979
SR-91, SR-57 to SR-55 (Segment 1,2 and 3) Outreach ²	I	\$2,000									\$2,000
SR-91, SR-241 to I-15	J	\$41,800									\$41,800
I-405 improvements, SR-73 to I-605	К	\$2,080,234	\$35,000		\$10,648			\$89,771		\$1,315,885	\$628,930
I-405 (I-5 to SR-55)	L	\$8,000	\$8,000								
I-605/ Katella Avenue interchange	М	\$32,144	\$17,800							\$14,344	
241/91 Express Lanes (HOT) connector		\$182,298	\$50								\$182,248
I-405 s/b aux lane - University Drive to Sand Canyon and Sand Canyon to SR-133		\$2,328				\$2,328					
I-5 Managed Lane Project from Avenida Pico to San Diego County Line		\$6,978	\$6,978								
SR-74 - Gap closure for 0.9 mile and multimodal improvements		\$53,513			\$250	\$43,913				\$7,200	\$2,150
SR-74 widening, City/County line to Antonio Parkway		\$40,905	\$5,285			\$10,000					\$25,620
State Highway Project Totals \$4,004,681		\$509,290		\$77,761	\$336,056	\$182,783	\$119,603		\$1,823,276	\$955,912	
Federal Funding Total \$587,051											
State Funding Total \$638,442											
Local Funding Total \$2,779,188											
Total Funding (000's) \$4,004,681											

State Highway Project Completed											
	Federal Funds			State Funds			Local Funds				
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 HOV lane each direction s/o PCH to San Juan Creek Road	С	\$74,300	\$11,326					\$20,789		\$42,185	
I-5 HOV lanes from s/o Avenida Vista Hermosa to s/o PCH	С	\$75,300	\$12,065			\$46,779				\$16,456	



Local Funding Total

Total Funding (000's)

Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - October 10, 2022

\$206,310

\$999,456

State Highway Project Completed											
	Federal Funds		State Funds			Local Funds					
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 HOV lanes: s/o Avenida Pico to s/o Vista Hermosa	С	\$83,500	\$26,867		\$1,600	\$43,735				\$11,298	
I-5/SR-74 interchange improvements	D	\$80,300				\$48,683		\$24,109	\$2,500		\$5,008
I-5/SR-74 interchange landscaping/replacement planting	D	\$1,440			\$752	\$688					
SR- 57 n/b widening, Katella Avenue to Lincoln Avenue - landscaping	G	\$2,172								\$2,172	
SR- 57 n/b widening, SR-91 to Yorba Linda Boulevard - landscaping	G	\$946								\$946	
SR-57 n/b widening, Katella Avenue to Lincoln Avenue	G	\$35,827						\$24,127		\$11,700	
SR-57 n/b widening, SR-91 to Yorba Linda Boulevard	G	\$51,354						\$39,475		\$11,879	
SR-57 n/b widening, Yorba Linda to Lambert Road		\$52,871						\$41,250		\$11,621	
SR-57 n/b widening, Yorba Linda to Lambert Road - landscaping		\$1,193								\$1,193	
SR-91 w/b connect existing aux lanes, I-5 to SR-57		\$62,977						\$27,227		\$35,750	
SR-91 w/b connecting existing aux lanes, I-5 to SR-57 - landscaping		\$2,290								\$2,290	
SR-91 w/b (SR-55 - Tustin interchange) improvements	I	\$43,753				\$15,753		\$14,000		\$14,000	
SR-91 e/b widening, SR-241 to SR-71	J	\$57,773			\$45,911					\$6,942	\$4,920
SR-91 w/b routes 91/55 - e/o Weir Canyon Road replacement planting	J	\$2,898				\$2,898					
SR-91 widening, SR-55 to Gypsum Canyon (Weir Canyon Road/SR-241)	J	\$76,993				\$22,250		\$54,045		\$698	
I-405/SR-22/I-605 HOV connector - landscaping		\$4,600	\$4,600								
HOV connectors from I-405 and I-605		\$173,091	\$14,787					\$135,430	\$16,200		\$6,674
HOV connectors from SR-22 to I-405 M1		\$115,878	\$64,375		\$49,625				\$1,878		
State Highway Project Completed Totals \$999,456			\$134,020		\$97,888	\$180,786		\$380,452	\$20,578	\$169,130	\$16,602
Federal Funding Total \$231,908											
State Funding Total \$561,238											



Board Actions:

Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - October 10, 2022

Board Actions:	Acronyms:				
	Aux - Auxilliary				
Cooperative Agreement with the California Department of Transportation for the Interstate 5 Plant Establishment Project Between State Route 73 and El Toro Road	CMAQ - Congestion Mitigation Air Quality Improvement Program				
item:	E/B - Eastbound				
1. Authorize the use of up to \$0.79 million in Surface Transportation Block Grant	E/O - East of				
State Route 73 and El Toro Road in lieu of Measure M2 funding	FTA - Federal Transit Administration				
State Notice 75 and El 1010 Nota in neu of Medsare M2 fananig.	HOT - High-Occupancy Toll				
Approval to Release Request for Proposals for Public Outreach for the State Route	HOV - High-Occupancy Vehicle				
91 Improvement Project item:	I-405 - Interstate 405				
2. Authorize the use of up to \$2.00 million in 91 Express Lane funds for outreach	I-5 - Interstate 5				
efforts for all three segments of the State Route 91 Improvement Project from	I-605 - Interstate 605				
State Route 57 to State Route 55.	LA - Los Angeles				
	M Code - Project Codes in Measure M1 and M2				
	M1 - Measure M1				
	M2 - Measure M2				
	N/B - Northbound				
	OC - Orange County				
	OCTA - Orange County Transportation Authority				
	PCH - Pacific Coast Highway				
	RSTP - Regional Surface Transportation Program				
	S/B - Southbound				
	S/O - South of				
	SB 1 - Senate Bill 1 (Chapter 5, Statutes of 2017)				
	SR-133 - State Route 133				
	SR-22 - State Route 22				
	SR-241 - State Route 241				
	SR-55 - State Route 55				
	SR-57 - State Route 57				
	SR-71 - State Route 71				
	SR-73 - State Route 73				
	SR-74 - State Route 74				
	SR-91 - State Route 91				
	STBG - Surface Transportation Block Grant				
	STIP - State Transportation Improvement Program				
	W/B - Westbound				



October 10, 2022

To: Members of the Board of Directors

From: Andrea West, Interim Clerk of the Board Mark

Subject:Amendment to Cooperative Agreement with the Orange County
Flood Control District for the Interstate 405 Improvement Project

Regional Planning and Highways Committee Meeting of October 3, 2022

Present:Directors Bartlett, Foley, Harper, Muller, and MurphyAbsent:Directors Chaffee and Delgleize

Committee Vote

This item was passed by the Members present.

Director Foley was not present to vote on this item.

Committee Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 2 to Cooperative Agreement No. C-5-3617 between the Orange County Transportation Authority and the Orange County Flood Control District, in the amount of \$500,000, for additional project support services for the Interstate 405 Improvement Project. This will increase the agreement amount to \$2,000,000.



October 3, 2	2022
То:	Regional Planning and Highways Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Amendment to Cooperative Agreement with the Orange Cou

Amendment to Cooperative Agreement with the Orange County unject: Flood Control District for the Interstate 405 Improvement Project

Overview

On May 9, 2016, the Orange County Transportation Authority Board of Directors approved Cooperative Agreement No. C-5-3617 with the Orange County Flood Control District for support services for the Interstate 405 Improvement Project. An amendment to the cooperative agreement is required for additional support services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 2 to Cooperative Agreement No. C-5-3617 between the Orange County Transportation Authority and the Orange County Flood Control District, in the amount of \$500,000, for additional project support services for the Interstate 405 Improvement Project. This will increase the agreement amount to \$2,000,000.

Discussion

The Orange County Transportation Authority (OCTA), in cooperation with the California Department of Transportation (Caltrans) and the Orange County Flood Control District (OCFCD), is implementing the Interstate 405 (I-405) Improvement Project between State Route 73 (SR-73) and Interstate 605 (I-605) (Project). The Project will add one general purpose lane from Euclid Street to I-605, consistent with Measure M2 (M2) Project K, and will add an additional lane in each direction that will combine with the existing high-occupancy vehicle lane to provide dual express lanes in each direction of I-405 from SR-73 to I-605, otherwise known as the 405 Express Lanes. The Project includes improvements to numerous OCFCD-owned and maintained flood channels and storm drains throughout the Project limits, including major facilities at Ocean View, Bixby, East Garden Grove Wintersburg, Santa Ana, and Montecito channels as well as the Santa Ana River.

Amendment to Cooperative Agreement with the Orange County Page 2 Flood Control District for the Interstate 405 Improvement Project

On May 9, 2016, the OCTA Board of Directors (Board) approved Cooperative Agreement No. C-5-3617 with the OCFCD for support services for the Project. The reimbursement to OCFCD includes costs for plans and specifications review and concurrence, oversight of construction inspection, encroachment permit review, and document review, as requested by OCTA during design and construction of the Project.

The original scope of work assumed limited efforts for design review and construction inspection and assumed the construction period and associated OCFCD support services to end in early 2023. As the Project has progressed, it has become apparent that additional OCFCD support services are required based on the revised Project schedule and completion of construction of the flood control facilities in late 2023, with Project closeout to follow in 2024.

Additionally, OCFCD support services that were not anticipated during the development of the original scope of work and level of effort estimates, are now required and include the following:

- The analysis of corrosive resistant concrete measures at the Oceanview and Bixby channels to allow for longer term concrete protection for permanent flood control facilities.
- Design refinements at East Garden Grove Wintersburg channel as a result of access challenges and a revised method to install proposed drainage facility improvements under the I-405 freeway.
- Additional OCFCD reviews of multiple design alternatives to eliminate retaining walls at the Santa Ana River maintenance access road.
- Additional OCFCD reviews at the Montecito channel for various design alternatives to the proposed box culvert, including different alignments and box culvert geometries and configurations, capacity analysis reports, as well as information to support permitting efforts with resource agencies.

Fiscal Impact

Funding for this amendment is included in the OCTA Fiscal Year 2022-23 Budget, Capital Programs Division, account nos. 0017-9084-FK101-0I2 and 0037-9017-A9510-0I2 and is funded with a combination of federal, state, and local funds. The proposed amendment will be funded from the Project contingency and is not anticipated to increase the total Project estimate of \$2.08 billion.

Amendment to Cooperative Agreement with the Orange County Page 3 Flood Control District for the Interstate 405 Improvement Project

Summary

Staff requests Board of Directors' approval for the Chief Executive Officer to negotiate and execute Amendment No. 2 to Cooperative Agreement No. C-5-3617 with the Orange County Flood Control District, in the amount of \$500,000, for additional project support services for the Interstate 405 Improvement Project. This will increase the agreement amount to \$2,000,000.

Attachment

A. Orange County Flood Control District, Cooperative Agreement No. C-5-3617 Fact Sheet

Prepared by:

fif Mills

Jeff Mills, P.E. Senior Program Manager (714) 560-5925

"Pi-Varago-

Pia Veesapen Director, Contracts Administration and Materials Management (714) 560-5619

Approved by:

Justic

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646

Orange County Flood Control District Cooperative Agreement No. C-5-3617 Fact Sheet

- 1. March 9, 2016, Cooperative Agreement No. C-5-3617, \$1,500,000, approved by the Board of Directors (Board).
 - To provide the Orange County Flood Control District (OCFCD) plans and specifications review and concurrence, oversight of construction inspection, encroachment permit review, and document review, for the proposed improvements to the OCFCD facilities, as requested by the Orange County Transportation Authority (OCTA), during the design and construction of the Interstate 405 Project (Project.)
 - OCTA's maximum obligation, in the total amount of \$1,500,000, represented by costs directly reimbursable to OCFCD.
- 2. March 11, 2019, Amendment No. 1 to Cooperative Agreement No. C-5-3617, \$0, approved by the Board.
 - To increase OCTA's cost share for improvements to the Ocean View Channel using the cut-and-cover construction method determined by OC405 Partners (Contractor).
- 3. October 10, 2022, Amendment No. 2 to Cooperative Agreement No. C-5-3617, \$500,000, pending Board approval.
 - To increase OCTA's reimbursement to OCFCD for providing additional support services for the proposed improvements to the OCFCD facilities to accommodate the current Project construction completion milestone date of late 2023, and Project closeout in 2024. These services are needed at Oceanview and Bixby channels; East Garden Grove Wintersburg channel; Santa Ana River maintenance access road; and Montecito channel.
 - To revise OCTA's maximum obligation, in the amount of \$500,000, for costs directly reimbursable to OCFCD.

Total committed to the Orange County Flood Control District after approval of Amendment No. 2 to Cooperative Agreement No. C-5-3617: \$2,000,000.



October 10, 2022

To:	Members of the Board of Directors
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Approval to Release Request for Proposals for Public Outreach for the State Route 91 Improvement Project

Overview

Staff is requesting Board of Directors' approval to release a request for proposals for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue. These services are needed for community outreach efforts during the pre-construction and construction phases of the project. A draft request for proposals has been developed to initiate a competitive procurement process to retain a public outreach consultant.

Recommendations

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 2-2796 for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.
- B. Approve the release of Request for Proposals 2-2796 to select a firm to provide public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.
- C. Authorize the use of up to \$1.9 million in 91 Express Lanes funds for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue.
- D. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.

Discussion

State Route 91 (SR-91) improvements between State Route 57 (SR-57) and State Route 55 (SR-55) (Project) are part of Project I in the M2 Freeway Program. The Project was approved through construction in the Next 10 Delivery Plan adopted by the Orange County Transportation Authority (OCTA) Board of Directors (Board) in November 2019.

SR-91 is a major east-west corridor connecting Riverside County with Orange and Los Angeles counties. The Project corridor includes the cities of Anaheim, Fullerton, Orange, and Placentia, and extends approximately 5.6 miles.

The Project is being constructed in three segments:

- Segment 1 extends from SR-55 to Lakeview Avenue
- Segment 2 extends from La Palma Avenue to SR-55
- Segment 3 extends from Acacia Street to La Palma Avenue

Construction on the first segment is currently scheduled to begin in early 2024, on the second segment in late 2024, and on the third segment in mid-2025. Project construction is anticipated to be completed by late 2028.

The \$426 million Project will provide improvements that include replacing four bridges and modifying several ramps to bring them up to the latest design standards where possible and make them safer for pedestrians, bicyclists, and motorists. A new on-ramp structure from Lakeview Avenue to southbound SR-55 will be constructed, reducing weaving, and merging on westbound SR-91 between Lakeview and southbound SR-55, and a new 12-foot general purpose lane will be constructed on eastbound SR-91 between SR-57 and SR-55. In addition, the westbound SR-91 connector to northbound and a portion of southbound SR-57 will be reconstructed, a new Orangethorpe bypass ramp will be constructed, multiple retaining walls and sound walls will be built, and new lighting, signage, and other safety features will be installed or improved.

The Project corridor consists of residential, commercial, and industrial land uses adjacent to the freeway. The corridor also crosses the Santa Ana River. SR-91 carries approximately 224,000 to 321,000 annual average daily traffic through the Project area, and that is projected to increase in the future. Studies show that population growth in the Project area through 2035 is expected to be approximately 12 percent, and employment growth is projected to be approximately 17 percent. Extensive outreach efforts are needed to communicate major activities to residents, business owners, motorists, and key

Approval to Release Request for Proposals for Public *Page 3* Outreach for the State Route 91 Improvement Project

stakeholders such as local agencies, and the goods movement and tourism industries.

Given the Project scope, complexity, and relevance to the commuting public and major stakeholders, Board approval is requested to release a request for proposals (RFP) for consultant services to provide public outreach during the pre-construction and construction phases. These consultant services will aid OCTA and the California Department of Transportation with the development and delivery of communications on a day-to-day basis and provide advance public information messages that help the public understand the value and benefits of investments in Orange County's transportation network, as well as temporary construction impacts.

The selected consultant will implement a comprehensive SR-91 public outreach program that will engage with all stakeholders, including diverse and disadvantaged communities, using a variety of methods and tools, such as:

- Conduct one-on-one meetings with city representatives, key stakeholders, community-based organizations, and members of the business, ethnic, and faith communities
- Attend city council and speaker's bureau presentations
- Send email newsletters and automated notifications
- Host neighborhood meetings
- Develop interactive closures and detours map
- Build Project website and social media presence
- Develop a variety of print collateral
- Coordinate pre- and post-construction surveys
- Facilitate implementation of temporary construction easements

Procurement Approach

OCTA's Board-approved procurement policies and procedures require that the Board approve all RFPs over \$1,000,000, as well as approve the evaluation criteria and weightings. Staff is submitting for Board approval the draft RFP and evaluation criteria and weightings, which will be used to evaluate proposals received in response to the RFP.

The proposed evaluation criteria and weightings are as follows:

•	Qualifications of the Firm	20 percent
•	Staffing and Project Organization	25 percent

- Staffing and Project Organization
- Work Plan 30 percent
- Cost and Price 25 percent

Several factors were considered in developing the evaluation criteria weightings. Qualifications of the firm is weighted at 20 percent as the consulting firm must have public outreach experience on complex transportation projects during pre-construction and construction phases. Staffing and project organization is weighted at 25 percent as the proposing firm must demonstrate an experienced, well-rounded team consisting of senior and junior level staff having adequate availability, as well as demonstrating relevant experience performing outreach services on large construction projects. Work plan is weighted at 30 percent as the plan must consider the unique needs of a corridor composed of residential. commercial, and industrial businesses that also serves motorists commuting from the Inland Empire and Los Angeles County to and from Orange County, as well as the goods movement and tourism industries. Additionally, the proposed work plan must demonstrate an understanding of the Project scope and challenges, as well as level of effort required. Cost and price is weighted at 25 percent to ensure that OCTA receives value for the services provided.

The contract for this procurement will be for a six-year initial term with an option term of up to 36 months. The total cost for the initial term is anticipated to be approximately \$1,900,000.

This RFP will be released upon Board approval of these recommendations.

Fiscal Impact

The Project was approved in OCTA's Fiscal Year 2022-23 Budget, People and Community Engagement Division, Account Nos. 0017-7519-FI104-16H, 0017-7519-FI105-16H, and 0017-7519-FI106-16E, and is proposed to be funded through net excess 91 Express Lanes (EL) revenue. This project is listed as Project I in the Measure M2 Next 10 Delivery Plan, and the use of 91 EL excess revenue is consistent with the OCTA Board-approved Capital Programming Policy regarding using the 91 EL funds for SR-91 improvement-related projects. The Capital Funding Program includes a summary of how OCTA's capital projects are currently funded along with the proposed changes in this item and is provided as Attachment B.

Summary

Board of Directors' approval is requested to release RFP 2-2796 for public outreach consultant services for the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue, approval of the proposed evaluation criteria and weightings, as well as approval to use up to \$1.9 million in 91 Express Lanes funds for public outreach consulting services.

Attachments

- A. Draft Request for Proposals (RFP) 2-2796, Public Outreach for State Route 91 Improvement Project
- B. Capital Funding Program Report

Prepared by:

Chris Boucly Section Manager, Public Outreach 714-560-5326

Pin Venapa

Pia Veesapen Director, Contracts Administration and Materials Management 714-560-5619

Approved by:

Maggie McJilton Executive Director, People and Community Engagement 714-560-5824

DRAFT REQUEST FOR PROPOSALS (RFP) 2-2796

PUBLIC OUTREACH FOR STATE ROUTE 91 IMPROVEMENT PROJECT



ORANGE COUNTY TRANSPORTATION AUTHORITY 550 South Main Street P.O. Box 14184 Orange, CA 92863-1584 (714) 560-6282

Key RFP Dates

Issue Date:	October 10, 2022
Pre-Proposal Conference Date:	October 19, 2022
Question Submittal Date:	October 21, 2022
Proposal Submittal Date:	November 7, 2022
Interview Date:	December 6, 2022

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October 10, 2022

NOTICE OF REQUEST FOR PROPOSALS (RFP)

RFP 2-2796: "PUBLIC OUTREACH FOR STATE ROUTE 91 IMPROVEMENT PROJECT"

TO: ALL OFFERORS

FROM: ORANGE COUNTY TRANSPORTATION AUTHORITY

The Orange County Transportation Authority (Authority) invites proposals from qualified consultants to develop and implement a comprehensive public outreach program for the pre-construction and construction phases of the State Route 91 Improvement Project between State Route 57 to State Route 55. The budget for this project is \$1,900,000 for a six (6)-year initial term.

Please note that by submitting a Proposal, Offeror certifies that it is not subject to any Ukraine/Russia-related economic sanctions imposed by the State of California or the United States Government including, but not limited to, Presidential Executive Order Nos. 13660, 13661, 13662, 13685, and 14065. Any individual or entity that is the subject of any Ukraine/Russia-related economic sanction is not eligible to submit a Proposal. In submitting a Proposal, all Offerors agree to comply with all economic sanctions imposed by the State or U.S. Government.

Proposals must be received in the Authority's office at or before 2:00 p.m. on November 7, 2022.

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Iris Deneau, Senior Contract Administrator Proposals delivered using the U.S. Postal Service shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management P.O. Box 14184 Orange, California 92863-1584 Attention: Iris Deneau, Senior Contract Administrator

Note: The Authority utilizes a third-party delivery service; therefore, please anticipate a 48-hour delay in delivery of proposals mailed to the P.O. Box listed above. Proposals are considered received once time stamped at the Authority's physical address.

Firms interested in obtaining a copy of this RFP may do so by downloading the RFP from CAMM NET at <u>https://cammnet.octa.net</u>.

All firms interested in doing business with the Authority are required to register their business on-line at CAMM NET. The website can be found at https://cammnet.octa.net. From the site menu, click on CAMM NET to register.

To receive all further information regarding this RFP 2-2796, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u>	Commodity:
Professional Consulting	Consultant Services - General
	Consultant Services - Transit
	Planning
	Consultant Services -
	Transportation Planning
Marketing, Advertising & Media	Communications Marketing
Services	Services
	Copywriting Services
	Graphic Arts Design Services
	(Not Printing)
	Mailhouse Services
	Photography Services
	Public Relations/Outreach
	Services
	Video Production
Printing & Reproduction	Printing and Related Services

Services Services (General)

Language Translator/Interpreter Services

A pre-proposal conference will be held via teleconference on October 19, 2022, at 10:00 a.m. Prospective Offerors may join or call-in using the following credentials:

- <u>Click here to join the meeting</u>
- OR Call-in Number: 916-550-9867
- Conference ID: 531 324 299#

An on-site/in-person conference will not be held. A copy of the presentation slides and pre-proposal conference registration sheet(s) will be issued via addendum prior to the date of the pre-proposal conference. All prospective Offerors are encouraged to attend the pre-proposal conference.

The Authority has established December 6, 2022 as the date to conduct interviews. All prospective Offerors will be asked to keep this date available.

Offerors are encouraged to subcontract with small businesses to the maximum extent possible.

All Offerors will be required to comply with all applicable equal opportunity laws and regulations.

The award of this contract is subject to receipt of federal, state, and/or local funds adequate to carry out the provisions of the proposed agreement including the identified Scope of Work.

SECTION I: INSTRUCTIONS TO OFFERORS

SECTION I. INSTRUCTIONS TO OFFERORS

A. PRE-PROPOSAL CONFERENCE

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B. EXAMINATION OF PROPOSAL DOCUMENTS

By submitting a proposal, Offeror represents that it has thoroughly examined and become familiar with the work required under this RFP and that it is capable of performing quality work to achieve the Authority's objectives.

C. ADDENDA

The Authority reserves the right to revise the RFP documents. Any Authority changes to the requirements will be made by written addendum to this RFP. Any written addenda issued pertaining to this RFP shall be incorporated into the terms and conditions of any resulting Agreement. The Authority will not be bound to any modifications to or deviations from the requirements set forth in this RFP as the result of oral instructions. Offerors shall acknowledge receipt of addenda in their proposals. Failure to acknowledge receipt of Addenda may cause the proposal to be deemed non-responsive to this RFP and be rejected.

D. AUTHORITY CONTACT

All communication and/or contacts with Authority staff regarding this RFP are to be directed to the following Contract Administrator:

Iris Deneau, Senior Contract Administrator Contracts Administration and Materials Management Department Phone: 714.560. 5786 Email: ideneau@octa.net

Commencing on the date of the issuance of this RFP and continuing until award of the contract or cancellation of this RFP, no offeror, subcontractor, lobbyist, or agent hired by the offeror shall have any contact or communications regarding this RFP with any Authority's staff; member of the evaluation committee for this RFP; or any contractor or consultant involved with the procurement, other than the Contract Administrator named above or unless expressly permitted by this RFP. Contact includes face-to-face, telephone, electronic mail (email), or formal written communication. Any offeror, subcontractor, lobbyist, or agent hired by the offeror that engages in such prohibited communications may result in disqualification of the offeror at the sole discretion of the Authority.

E. CLARIFICATIONS

1. Examination of Documents

Should an Offeror require clarifications of this RFP, the Offeror shall notify the Authority in writing in accordance with Section E.2. below. Should it be found that the point in question is not clearly and fully set forth, the Authority will issue a written addendum clarifying the matter which will be sent to all firms registered on CAMM NET under the commodity codes specified in this RFP.

2. Submitting Requests

- a. All questions, including questions that could not be specifically answered at the pre-proposal conference, must be put in writing and received via e-mail at ideneau@octa.net no later than 5:00 p.m. on October 21, 2022.
- b. Requests for clarifications, questions, and comments must be clearly labeled, "Written Questions RFP 2-2796," in the subject line of the email. The Authority is not responsible for failure to respond to a request that has not been labeled as such.

3. Authority Responses

Responses from the Authority will be posted on CAMM NET no later than October 26, 2022. Offerors may download responses from CAMM NET at <u>https://cammnet.octa.net</u>, or request responses be sent via email.

To receive email notification of Authority responses when they are posted on CAMM NET, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u> Professional Consulting <u>Commodity:</u> Consultant Services - General Consultant Services - Transit Planning Consultant Services -Transportation Planning

Marketing, Advertising & Media Services	Communications Marketing Services
	Copywriting Services
	Graphic Arts Design Services
	(Not Printing)
	Mailhouse Services
	Photography Services
	Public Relations/Outreach
	Services
	Video Production
Printing & Reproduction Services	Printing and Related Services
Services (General)	Language
· · ·	Translator/Interpreter Services

Inquiries received after 5:00 p.m. on October 21, 2022 will not be responded to.

F. SUBMISSION OF PROPOSALS

1. Date and Time

Proposals must be received in the Authority's office at or before 2:00 p.m. on November 7, 2022.

Proposals received after the above-specified date and time will be returned to Offerors unopened.

2. Address

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Iris Deneau, Senior Contract Administrator

Or proposals delivered using the U.S. Postal Services shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) P.O. Box 14184 Orange, California 92863-1584 Attention: Iris Deneau, Senior Contract Administrator Note: The Authority utilizes a third-party delivery service; therefore, please anticipate a 48-hour delay in delivery of proposals mailed to the P.O. Box listed above. Proposals are considered received once time stamped at the Authority's physical address.

3. Identification of Proposals

Offeror shall submit one (1) **original** of its proposal in a sealed package, addressed as shown above in F.2. The outer envelope must show the Offeror's name and address and clearly marked with RFP number. In addition to the above, *Proposers shall also include one (1) electronic copy of their entire RFP submittal package in "PDF" format, on a CD, DVD, or flash drive.*

4. Acceptance of Proposals

- a. The Authority reserves the right to accept or reject any and all proposals, or any item or part thereof, or to waive any informalities or irregularities in proposals.
- b. The Authority reserves the right to withdraw or cancel this RFP at any time without prior notice and the Authority makes no representations that any contract will be awarded to any Offeror responding to this RFP.
- c. The Authority reserves the right to issue a new RFP for the project.
- d. The Authority reserves the right to postpone proposal openings for its own convenience.
- e. Each proposal will be received with the understanding that acceptance by the Authority of the proposal to provide the services described herein shall constitute a contract between the Offeror and Authority which shall bind the Offeror on its part to furnish and deliver at the prices given and in accordance with conditions of said accepted proposal and specifications.
- f. The Authority reserves the right to investigate the qualifications of any Offeror, and/or require additional evidence of qualifications to perform the work.
- g. Submitted proposals are not to be copyrighted.

G. PRE-CONTRACTUAL EXPENSES

The Authority shall not, in any event, be liable for any pre-contractual expenses incurred by Offeror in the preparation of its proposal. Offeror shall not include any such expenses as part of its proposal.

Pre-contractual expenses are defined as expenses incurred by Offeror in:

- 1. Preparing its proposal in response to this RFP;
- 2. Submitting that proposal to the Authority;
- 3. Negotiating with the Authority any matter related to this proposal; or
- 4. Any other expenses incurred by Offeror prior to date of award, if any, of the Agreement.

H. JOINT OFFERS

Where two or more firms desire to submit a single proposal in response to this RFP, they should do so on a prime-subcontractor basis rather than as a joint venture. The Authority intends to contract with a single firm and not with multiple firms doing business as a joint venture.

I. TAXES

Offerors' proposals are subject to State and Local sales taxes. However, the Authority is exempt from the payment of Federal Excise and Transportation Taxes. Offeror is responsible for payment of all taxes for any goods, services, processes, and operations incidental to or involved in the contract.

J. PROTEST PROCEDURES

The Authority has on file a set of written protest procedures applicable to this solicitation that may be obtained by contacting the Contract Administrator responsible for this procurement. Any protests filed by an Offeror in connection with this RFP must be submitted in accordance with the Authority's written procedures.

K. CONTRACT TYPE

It is anticipated that the Agreement resulting from this solicitation, if awarded, will be time-and-expense with fully-burdened labor rates and anticipated expenses for work specified in the scope of work, included in the RFP as Exhibit A. The Agreement will have a six (6)-year initial term with an option term of up to thirty-six (36) months.

L. CONFLICT OF INTEREST

All Offerors responding to this RFP must avoid organizational conflicts of interest which would restrict full and open competition in this procurement. An organizational conflict of interest means that due to other activities, relationships or contracts, an Offeror is unable, or potentially unable, to render impartial assistance or advice to the Authority; an Offeror's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or an Offeror has an unfair competitive advantage. Conflict of Interest issues must be fully disclosed in the Offeror's proposal. All Offerors must disclose in their proposal and immediately throughout the course of the evaluation process if they have hired or retained an advocate to lobby Authority staff or the Board of Directors on their behalf.

Offerors hired to perform services for the Authority are prohibited from concurrently acting as an advocate for another firm who is competing for a contract with the Authority, either as a prime or subcontractor.

M. CODE OF CONDUCT

All Offerors agree to comply with the Authority's Code of Conduct as it relates to Third-Party contracts which is hereby referenced and by this reference is incorporated herein. All Offerors agree to include these requirements in all of its subcontracts.

N. OWNERSHIP OF RECORDS/PUBLIC RECORDS ACT

All proposals and documents submitted in response to this RFP shall become the property of the Authority and a matter of public record pursuant to the California Public Records Act, Government Code sections 6250 et seq. (the "Act"). Offerors should familiarize themselves with the provisions of the Act requiring disclosure of public information. Offerors are discouraged from marking their proposal documents as "confidential" or "proprietary."

If a Proposal does include "confidential" or "proprietary" markings and the Authority receives a request pursuant to the Act, the Authority will endeavor (but cannot guarantee) to notify the Offeror of such a request. In order to protect any information submitted within a Proposal, the Offeror must pursue, at its sole cost and expense, any and all appropriate legal action necessary to maintain the confidentiality of such information. The Authority generally does not consider pricing information, subcontractor lists, or key personnel, including resumes, as being exempt from disclosure under the Act. In no event shall the Authority or any of its officers, directors, employees, agents, representatives, or consultants be liable to an Offeror for the disclosure of any materials or information submitted in response to the RFP or by failing to notify an Offeror of a request seeking its Proposal. The Authority reserves the right to make an independent decision to disclose records and material.

Notwithstanding the above, all information regarding proposal responses will be held as confidential until such time as the evaluation has been completed; an award has been made by the Board of Directors or Authority Staff, as appropriate; and the contract has been fully negotiated.

SECTION II: PROPOSAL CONTENT

SECTION II. PROPOSAL CONTENT

A. PROPOSAL FORMAT AND CONTENT

1. Format

Proposals should be typed with a standard 12-point font, double-spaced. Proposals should not include any unnecessarily elaborate or promotional materials. Proposals should not exceed fifty (50) pages in length, excluding any appendices, cover letters, resumes, or forms.

2. Letter of Transmittal

The Letter of Transmittal shall be addressed to Iris Deneau, Senior Contract Administrator, and must, at a minimum, contain the following:

- a. Identification of Offeror that will have contractual responsibility with the Authority. Identification shall include legal name of company, corporate address, telephone and fax number, and email address. Include name, title, address, email address, and telephone number of the contact person identified during period of proposal evaluation.
- b. Identification of all proposed subcontractors including legal name of company, contact person's name and address, telephone and fax number, and email address; relationship between Offeror and subcontractors, if applicable.
- c. Acknowledgement of receipt of all RFP addenda, if any.
- d. A statement to the effect that the proposal shall remain valid for a period of not less than 120 days from the date of submittal.
- e. Signature of a person authorized to bind Offeror to the terms of the proposal.
- f. Signed statement attesting that all information submitted with the proposal is true and correct.

3. Technical Proposal

a. Qualifications, Related Experience, and References of Offeror

This section of the proposal should establish the ability of Offeror to satisfactorily perform the required work by reasons of: experience in performing work of a similar nature; demonstrated competence in the services to be provided; strength and stability of the firm; staffing capability; work load; record of meeting schedules on similar projects; and supportive client references.

Offeror to:

- (1) Provide a brief profile of the firm, including the types of services offered; the year founded; form of the organization (corporation, partnership, sole proprietorship); number, size, and location of offices; and number of employees.
- (2) Provide a general description of the firm's financial condition and identify any conditions (e.g., bankruptcy, pending litigation, planned office closures, impending merger) that may impede Offeror's ability to complete the project.
- (3) Describe the firm's experience in performing work of a similar nature to that solicited in this RFP, and highlight the participation in such work by the key personnel proposed for assignment to this project.
- (4) Demonstrate an understanding of Orange County transportation issues, as well as the issues, audiences, and technical processes associated with freeway construction.
- (5) Demonstrate experience with crisis communications, implementation of temporary construction easements, coordinating temporary lodging, facilitating a claims process, and managing multilingual helplines.
- (6) Demonstrate ability to decipher technical information and communicate it to the public in concise, understandable terms.
- (7) Identify subcontractors by company name, address, contact person, telephone number, email address, and project function. Describe Offeror's experience working with each subcontractor.
- (8) Identify all firms hired or retained to provide lobbying or advocating services on behalf of the Offeror by company name, address, contact person, telephone number, and email address. This information is required to be provided by the Offeror immediately during the evaluation process, if a lobbyist or advocate is hired or retained.
- (9) Provide as a minimum three (3) references for the projects cited as related experience, and furnish the name, title, address, telephone number, and email address of the person(s) at the client organization who is most knowledgeable about the work

performed. Offeror may also supply references from other work not cited in this section as related experience.

b. Proposed Staffing and Project Organization

This section of the proposal should establish the method, which will be used by the Offeror to manage the project, as well as identify key personnel assigned.

Offeror to:

- (1) Identify key personnel proposed to perform the work and include major areas of subcontract work. Include the person's name, current location, proposed position for this project, current assignment, level of commitment to that assignment, availability for this assignment, and how long each person has been with the firm.
- (2) Furnish brief resumes (not more than two [2] pages each) for the proposed Project Manager and other key personnel that includes education, experience, and applicable professional credentials.
- (3) Include a project organization chart, which clearly delineates communication/reporting relationships among the project staff.
- (4) Include a statement that key personnel will be available to the extent proposed for the duration of the project acknowledging that no person designated as "key" to the project shall be removed or replaced without the prior written concurrence of the Authority.

c. Work Plan

Offeror should provide a narrative, which addresses the Scope of Work, and shows Offeror's understanding of Authority's needs and requirements.

Offeror to:

- (1) Describe the approach to completing the work specified in the Scope of Work. The approach to the work plan shall be of such detail to demonstrate the Offeror's ability to accomplish the project objectives and overall schedule.
- (2) Provide a project budget spreadsheet that, at a minimum, identifies the following information: a) the activities that would be undertaken in completing the work; b) specify who would

perform them; c) the number of hours anticipated for each member of the project staff; d) other direct costs; and e) the total proposed project cost. *Note: Specific individual hourly rates for proposed project team shall not be included in this spreadsheet.*

- (3) Identify methods that Offeror will use to ensure quality control, as well as budget and schedule control for the project.
- (4) Identify any special issues or problems that are likely to be encountered in this project and how the Offeror would propose to address them.
- (5) Offeror is encouraged to propose enhancements or procedural or technical innovations to the Scope of Work that do not materially deviate from the objectives or required content of the project.
- (6) Provide samples of past collateral for similar public outreach campaigns.

d. Exceptions/Deviations

State any technical and/or contractual exceptions and/or deviations from the requirements of this RFP, including the Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C), using the form entitled "Proposal Exceptions and/or Deviations" included in this RFP. This Proposal Exceptions and/or Deviations form (Exhibit G) must be included in the original proposal submitted by the Offeror. If no technical or contractual exceptions and/or deviations are submitted as part of the original proposal, Offerors are deemed to have accepted the Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C). Offerors will not be allowed to submit the Proposal Exceptions and/or Deviations form (Exhibit G) or any technical and/or contractual exceptions after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

All exceptions and/or deviations will be reviewed by the Authority and will be assigned a "pass" or "fail" status. Exceptions and deviations that "pass" do not mean that the Authority has accepted the change but that it is a potential negotiable issue. Exceptions and deviations that receive a "fail" status means that the requested change is not something that the Authority would consider a potential negotiable issue. Offerors that receive a "fail" status on their exceptions and/or deviations will be notified by the Authority and will be allowed to retract the exception and/or deviation and continue in the evaluation process. Any exceptions and/or deviation that receive a "fail" status and the Offeror cannot or does not retract the requested change may result in the firm being eliminated from further evaluation.

4. Cost and Price Proposal

As part of the cost and price proposal, the Offeror shall submit proposed pricing to provide the services for work described in Exhibit A, Scope of Work.

The Offeror shall complete the "Price Summary Sheet" form included with this RFP (Exhibit B), <u>as a separate sealed package from the proposal</u>. No information regarding individual hourly rates shall be mentioned anywhere in the proposal content.

It is anticipated that the Authority will issue a time-and-expense price contract specifying fully-burdened labor rates and anticipated expenses to complete the Scope of Work.

All proposals <u>must include Exhibit B, Price Summary Sheet, as a</u> <u>separate sealed package from the proposal</u>.

5. Appendices

Information considered by Offeror to be pertinent to this project and which has not been specifically solicited in any of the aforementioned sections may be placed in a separate appendix section. Offerors are cautioned, however, that this does not constitute an invitation to submit large amounts of extraneous materials. Appendices should be relevant and brief.

B. FORMS

1. Campaign Contribution Disclosure Form

In conformance with the statutory requirements of the State of California Government Code Section 84308, part of the Political Reform Act and Title 2, California Code of Regulations 18438 through 18438.8, regarding campaign contributions to members of appointed Board of Directors, Offeror is required to complete and sign the Campaign Contribution Disclosure Form provided in this RFP and submit as part of the proposal.

This form **must** be completed regardless of whether a campaign contribution has been made or not and regardless of the amount of the contribution.

The prime contractor, subconsultants, lobbyists and agents are required to report all campaign contributions made from the proposal submittal date up to and until the Board of Directors makes a selection.

2. Status of Past and Present Contracts Form

Offeror shall complete and sign the form entitled "Status of Past and Present Contracts" provided in this RFP and submit as part of its proposal. Offeror shall identify the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract. Offeror shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of Offeror's proposal.

A separate form must be completed for each identified contract. Each form must be signed by the Offeror confirming that the information provided is true and accurate.

3. **Proposal Exceptions and/or Deviations Form**

Offerors shall complete the form entitled "Proposal Exceptions and/or Deviations" provided in this RFP and submit it as part of the original proposal. For each exception and/or deviation, a new form should be used, identifying the exception and/or deviation and the rationale for requesting the change. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed nor considered by the Authority.

SECTION III: EVALUATION AND AWARD

SECTION III. EVALUATION AND AWARD

A. EVALUATION CRITERIA

The Authority will evaluate the offers received based on the following criteria:

1. Qualifications of the Firm

Technical experience in performing work of a closely similar nature; strength and stability of the firm; strength, stability, experience and technical competence of subcontractors; assessment by client references.

2. Staffing and Project Organization

Qualifications of project staff, particularly key personnel and especially the Project Manager; key personnel's level of involvement in performing related work cited in "Qualifications of the Firm" section; logic of project organization; adequacy of labor commitment; concurrence in the restrictions on changes in key personnel.

3. Work Plan

Depth of Offeror's understanding of Authority's requirements and overall quality of work plan; logic, clarity, and specificity of work plan; appropriateness of resource allocation among the tasks; reasonableness of proposed schedule; utility of suggested technical or procedural innovations.

4. Cost and Price

Reasonableness of rates; competitiveness with other offers received; adequacy of data in support of figures quoted.

B. EVALUATION PROCEDURE

An evaluation committee will be appointed to review all proposals received for this RFP. The committee is comprised of Authority staff and may include outside personnel. The committee members will evaluate the written proposals using criteria identified in Section III A. A list of top-ranked proposals, firms within a competitive range, will be developed based upon the totals of each committee members' score for each proposal.

During the evaluation period, the Authority may interview some or all of the proposing firms. The Authority has established December 6, 2022 as the date to conduct interviews. All prospective Offerors are asked to keep this date available. No other interview dates will be provided, therefore, if an Offeror is unable to attend the interview on this date, its proposal may be eliminated from further discussion. The interview may consist of a short presentation by the Offeror after which the

20%

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evaluation committee will ask questions related to the firm's proposal and qualifications.

At the conclusion of the proposal evaluations, the evaluation committee will score the proposals to develop a competitive range. Offerors remaining within the competitive range may be asked to submit a Best and Final Offer (BAFO). In the BAFO request, the firms may be asked to provide additional information, confirm or clarify issues and submit a final cost/price offer. A deadline for submission will be stipulated.

At the conclusion of the evaluation process, the evaluation committee will recommend to the Legislative and Communications Committee, the Offeror with the highest final ranking or a short list of top ranked firms within the competitive range whose proposal(s) is most advantageous to the Authority. The Board Committee will review the evaluation committee's recommendation and forward its recommendation to the Board of Directors for final action.

C. AWARD

The Authority's Board of Directors will consider the selection of the firm(s) recommended by the Board Committee.

The Authority may also negotiate contract terms with the selected Offeror prior to award, and expressly reserves the right to negotiate with several Offerors simultaneously and, thereafter, to award a contract to the Offeror offering the most favorable terms to the Authority.

Offeror acknowledges that the Authority's Board of Directors reserves the right to award this contract in its sole and absolute discretion to any Offeror to this RFP regardless of the evaluation committee's recommendation or recommendation of a Board Committee.

The Authority reserves the right to award its total requirements to one Offeror or to apportion those requirements among several Offerors as the Authority may deem to be in its best interest. In addition, negotiations may or may not be conducted with Offerors; therefore, the proposal submitted should contain Offeror's most favorable terms and conditions, since the selection and award may be made without discussion with any Offeror.

The selected Offeror will be required to submit to the Authority's Accounting department a current IRS W-9 form prior to commencing work.

D. NOTIFICATION OF AWARD AND DEBRIEFING

Offerors who submit a proposal in response to this RFP shall be notified via CAMM NET of the contract award. Such notification shall be made within three (3) business days of the date the contract is awarded.

Offerors who were not awarded the contract may obtain a debriefing concerning the strengths and weaknesses of their proposal. Unsuccessful Offerors, who wish to be debriefed, must request the debriefing in writing or electronic mail and the Authority must receive it within three (3) business days of notification of the contract award.

EXHIBIT A: SCOPE OF WORK

Scope of Work

State Route 91 Improvement Project (State Route 57 to State Route 55) Public Outreach for Pre-Construction and Construction Phases

BACKGROUND

The Orange County Transportation Authority (OCTA), in cooperation with the California Department of Transportation (Caltrans), proposes to improve State Route 91 (SR-91) between Lakeview Avenue and just west of State College Boulevard in Anaheim (Project).

SR-91 is a major east-west corridor connecting Riverside County with Orange and Los Angeles counties. The Project area includes the cities of Anaheim, Fullerton, Orange, and Placentia, and extends approximately 5.6 miles. Known as Project I in the OC Go program (also known as Measure M), the \$425.6 million Project is funded through a combination of local, state, and federal funds.

The Project includes improvements to SR-91 in both directions that will affect interchanges, connectors, ramps, and utilities. A new on-ramp structure from Lakeview Avenue to southbound State Route 55 will be constructed. Four (4) bridges will be replaced and ramps will be modified at several interchanges, bringing them up to the latest design standards where possible and making them safer for pedestrians, bicyclists, and motorists.

In addition, the westbound SR-91 connector to northbound and a portion of southbound State Route 57 will be reconstructed, a new Orangethorpe bypass ramp will be constructed, multiple retaining walls and sound walls will be built, and new lighting, signs, and other safety elements will be installed or improved. The Project will improve traffic operations and reduce congestion on SR-91 considering existing and future travel demand.

The Project is being designed and constructed in three (3) segments. Construction on the first segment is currently scheduled to begin in early 2024. Project construction is anticipated to be completed by late 2028.

ROLE OF THE CONSULTANT

The Consultant shall be responsible for developing and implementing an effective and comprehensive public outreach program for the pre-construction and construction phases of all three (3) Project segments. The Consultant and its team will be an extension of OCTA staff and will report to OCTA's Outreach Project Manager.

The outreach program shares with the public the general scope and benefits of the Project, anticipated construction activities, and planned closures and detours, as well as

the Project's progress. The program must demonstrate an understanding of the construction impacts on the public and help establish OCTA as a reliable and accurate source of Project-related information.

The Consultant must be able to demonstrate an understanding of Orange County transportation issues, as well as the issues, audiences, and technical processes associated with freeway construction. The Consultant also must be able to demonstrate experience with crisis communications, implementation of temporary construction easements, coordinating temporary lodging, facilitating a claims process, and managing multilingual helplines. The Consultant shall be expected to work with the construction management consultant and the Project contractor to prepare draft collateral materials and responses to constituents' inquiries, as well as attend internal and external coordination meetings.

OCTA seeks a consultant team with demonstrated skills, experience, and knowledge conducting public outreach and the ability to:

- Maintain and expand the stakeholder database
- Identify all key target audiences and develop strategies to communicate with them
- Empathize with members of the public regarding construction impacts
- Foster positive working relationships with diverse communities including residents, businesses, local jurisdictions, and other stakeholders within and outside of the Project area
- Conduct multilingual outreach with diverse communities
- Plan and execute neighborhood meetings and staff community events
- Decipher technical information and communicate it to the public in concise, understandable terms
- Highlight project benefits beyond improved traffic operations, such as:
 - Standardizing bicycle lanes and sidewalks
 - Adding lighting and fences on the bridges
 - Standardizing vertical clearance of bridges being replaced, and
 - Adding or improving crossings and signs
- Utilize digital communications and social networking and develop other interactive media tactics to engage a wide range of stakeholders
- Catalog constituent correspondence via phone, email, etc., in a searchable format
- Maintain a database of Project collateral, photos, and videos
- Plan and execute small- and large-scale special events
- Assist with resolving constituent issues and maintain a "boots on the ground" community presence
- Coordinate large-scale canvassing efforts

SCOPE OF SERVICES

Project Staffing

OCTA is seeking a consultant team that includes the following key roles:

Project Manager

The Project Manager shall serve as the primary point of contact. The Project Manager shall be responsible for leading and managing the Consultant team and subconsultants; overseeing the Project budget and monitoring the burn rate; conceptualizing, developing, and executing the communications plan; reviewing construction schedules and meeting deadlines and delivery of work tasks; and ensuring best practice and quality standards are met.

The Project Manager shall communicate and coordinate in a timely manner all work and progress on the outreach program to the OCTA Outreach Project Manager. The Project Manager will be held accountable for the Consultant team's overall performance.

The Project Manager must possess experience, knowledge, and skills in the following key areas:

- Demonstrated ability to develop public awareness and understanding of large-scale capital improvement projects preferably freeway improvement projects including project complexity and benefits.
- Proven experience communicating technical information to the general public in a manner that is clear and concise.
- Thorough understanding of construction and traffic management plans.
- Principles and practices of effective communications and community outreach, including the ability to leverage multimedia platforms and technology (i.e., social media, geofencing, email, text alerts, etc.) to engage a wide range of multilingual stakeholders.
- Management and oversight of the Consultant team

The Consultant's Project Manager may be removed and replaced only with the written consent of the OCTA Outreach Project Manager. Due to the importance of consistent project management for continuity, institutional knowledge, and to facilitate timely completion of the Project materials, OCTA will consider the unauthorized removal of the Consultant's Project Manager as grounds for termination of the contract. OCTA reserves the right to require the Consultant to remove and replace the Consultant's Project Manager or any member of the Consultant/sub-consultant team from the Project for cause.

Community Liaisons

Community Liaisons shall be responsible for providing day-to-day professional, organizational, and logistical services and support. The Community Liaison's duties include, but are not limited to, organizing stakeholder meetings and special events, managing social media platforms, developing collateral and presentation materials, coordinating direct mailers and canvassing efforts, identifying potential problems for early resolution, and responding to/resolving constituent concerns.

Community Liaisons are expected to be "boots on the ground" and in the trenches every day, interacting with the Project contractor, OCTA, Caltrans, and the community at-large. Consultant should propose Community Liaisons with expertise in communicating about highway construction and public outreach best practices. Community Liaisons need a general understanding of construction terms, methods, and associated community impacts.

Account Coordinator

Account Coordinators shall be responsible for supporting the Project Manager and Community Liaisons with a host of communication and outreach responsibilities, including special event planning, event setup and staffing, neighborhood outreach, delivery of materials and supplies. In addition, these junior-level staff will update the Project database on a regular basis, document and catalog outreach metrics, and perform other organizational and logistical tasks.

Graphic Designer

Graphic Designers shall be responsible for conceptualizing, designing, and producing visual communications. The Graphic Designer will be expected to deliver products that are clear, clean, simple, and informative using high-quality images that establish and/or enhance the public's understanding of the Project and associated activities. Examples of online and print communications include flyers, brochures, poster boards, maps, information graphics, short videos for social media platforms, and advertisements. It is often necessary for collateral to be developed and distributed within the same day due to the dynamic nature of construction.

Consultant must provide samples of collateral materials to demonstrate ability to provide relevant, easy-to-understand graphics and copy to the public for an infrastructure project.

Large-format printing may be required on occasion. Day-to-day printing of collateral such as facts sheets or flyers will be handled in house at OCTA by OCTA's Reprographics Department.

Subconsultant Services

In addition to the prime consultant team/key personnel, the Consultant must have the capacity to retain subconsultants to deliver a range of services, including but not be limited to:

- Collateral canvassing and courier
- Large-format, specialty printing
- Mail house/postage
- Translation
- Multilingual helpline support
- Social media support
- Special event planning and implementation
- Photography and video
- Interactive web-based detour maps
- Advertising/media buys

Not all services listed above are required to be provided by subconsultants. Please indicate if services can be performed by the prime consultant.

COORDINATION AND ADMINISTRATION

Monthly Progress Reports

The monthly progress report provides an account of completed outreach activities performed the prior month, as well as forecasted work. The monthly report will itemize work tasks (i.e., construction alerts, e-blasts, flyers, calendar of meetings/ presentations/events, social media metrics). Important milestones will be included. The reports also will include a brief analysis by metric category of month-over-month changes to support adjustments to outreach strategies or tactics.

Monthly Invoices

Monthly invoices shall be submitted to OCTA's Outreach Project Manager, Business Unit Analyst, and Accounts Payable staff for review, approval, and payment. The invoice packet must include a sheet summarizing cumulative monthly direct labor costs, direct expenses, subconsultant costs, and total contract budget and expenditures to date. The burn rate for labor and Other Direct Costs (ODCs) must be tracked and reflected on the invoice. The invoice packet also must contain a detailed account of daily work activity performed by each Consultant team member, as well as copies of receipts and other supporting documentation. The work activities must be broken down into task categories, as determined by the OCTA Outreach Project Manager.

Project Archive

A digital library of outreach materials must be maintained during the Project by the Consultant. At end of the contract, all digital files (i.e., collateral materials, creative/graphics, images, invoices, reports, presentations, etc.), including native files, shall be provided to OCTA.

Photography/Video

The Consultant shall regularly document the Project progress through photography, videography, and drone footage – including before and after documentation of key Project areas – and keep an archive marked with date and construction activity. The archive must be accessible to OCTA remotely through a web-based platform. It is recommended the Consultant coordinate photo and video shoots as needed.

PROJECT DATABASE

The Consultant shall be responsible for ongoing stakeholder ascertainment and managing/optimizing the Project database over the life of the Project.

Ascertainments

The purpose of stakeholder ascertainments will be to develop an understanding of stakeholder existing project knowledge, questions, and/or concerns, if any, relative to the freeway improvement Project. Stakeholders include, but are not limited to:

- Motorists
- Active transportation community
- Property owners or occupants (both commercial and residential)
- Businesses, employment centers, and destinations
- Homeowners associations
- Chambers of Commerce
- Civic organizations, churches, schools, special interest groups
- Elected officials, cities/municipalities, agencies, commissions
- Tourism Industry
- Emergency responders, hospitals, law enforcement, trucking industry

Stakeholder ascertainments will be:

- Staffed by the OCTA Outreach Project Manager and the Community Liaison unless otherwise directed
- Conducted using a preapproved list of questions
- Documented/recorded to the Project file in a report containing an executive summary, individual ascertainments, and any supporting documentation

Database

The Consultant shall populate and manage a database that will be structured so that records can be sorted and filtered based on positions, questions, complaints, concerns (e.g., noise, dust, views, sound walls, nighttime work, right-of-way, closures, etc.), and other key variables. The database shall include:

- A list of stakeholders, including business profiles, with contact information
- A field for classifying and documenting questions and concerns
- A form used to collect contact information at community meetings and events
- Ability to catalog and track outreach monthly metrics, including phone calls, emails, meeting attendance, presentations, flyer distribution, digital communications, text message, and Project hotline calls/messages

The database must be accessible to OCTA remotely through a web-based platform. OCTA may also request that the database be provided on data storage devices.

COMMUNICATIONS AND OUTREACH PROGRAM

Comprehensive Public Outreach Plan

The Consultant shall develop a proactive and comprehensive communications and public outreach program that will be implemented throughout pre-construction and construction. A draft Communications Plan will be due within thirty (30) days of contract execution with a final plan due within sixty (60) days. The Communication Plan shall specify goals and objectives, as well as lay out the strategy, tactics, budget, work tasks, and production schedules to complete them.

The proposed budget and schedule will be reviewed and approved by the OCTA Outreach Project Manager. Once approved, the budget and schedule will be regarded as the baseline. Given the nature of construction projects, the plan will be regarded as a living document that will be revised and updated to meet Project demands that may emerge.

The Communications Plan shall be based on research and consultation with OCTA, Caltrans, technical consultants, and city staff, as well as by using other sound, proven planning methods. The plan must serve to communicate and engage effectively with target audiences.

The Communications Plan must meet the following objectives:

1. Generate widespread awareness, understanding, and confidence in the Project among motorists, neighborhoods, cities, businesses, organizations, first-responders, and elected officials.

- 2. Proactively establish direct communications and positive relationships with residents, businesses operators and employees, community stakeholders and organizations and/or interest groups, and motorists.
- 3. Provide a strategy, including paid advertisements, that leverages social media technologies to educate the public and develop confidence in the Project, facilitate public communications and messaging, and flag potential concerns.
- 4. Develop a register of potential concerns and/or risks, as well as a plan of action to monitor and address such concerns and/or risks effectively and efficiently.
- 5. Produce content (written, audio, and/or visual) that communicates the Project purpose and features safety and multi-modal benefits and provides an overview of the construction Project, as well as milestones/achievements and schedule.
- 6. Present technical information in ways that can be clearly understood by the general public.
- 7. Supply content (written, audio, and/or visual) and staffing necessary for briefings, neighborhood meetings, community presentations, open houses, community events, and other similar public outreach efforts.
- 8. Help the public understand construction activities and impacts during construction and efforts to manage and minimize them. Major construction impacts include right-of-way acquisition, temporary lighting, road closures and detours, dust, noise, night work, and visual impacts.
- 9. Encourage employers to provide employees materials to help them plan their commutes and consider alternate transportation modes.
- 10. Disseminate construction, closure, and detour information to motorists traveling through the corridor from other areas.
- 11. Proactively reach out to and respond to community leaders, emergency responders, businesses and community organizations, tourism organizations and venues, homeowners associations and residents, as well as other stakeholders and interest groups.
- 12. Identify non-English speaking communities and produce Project materials in multiple languages.
- 13. Serve as a reference for questions about the Project and assist with responses.

Appropriate public communication and community outreach efforts may include, but are not limited to:

- Briefings with affected businesses, elected officials, city staff, agency executives, organizational leaders, etc.
- Open houses and neighborhood meetings (community-based and virtual)
- City Council and community presentations
- Digital communications (e.g., e-newsletters, social media, infographics, Project webpage, etc.)
- Print communications (e.g., closure and detour maps, flyers, door hangers, etc.)
- Community events
- Speakers bureau presentations
- Lobby displays

The Consultant shall collect and document public input gathered during community outreach efforts. Similarly, the Consultant shall keep record of comments registered via phone calls, emails, social media, and other means of communication.

Targeted Communications Plans

The Consultant shall work with the OCTA Outreach Project Manager to develop small-scale, targeted communications plans as needed to prepare for specific activities such as structure demolition, pile driving, long-term or full-freeway closures, etc.

Diverse Community Engagement

The Consultant shall support engagement with diverse and disadvantaged communities. This may include but not be limited to identifying non-English speaking households or neighborhoods, special needs communities, lower socioeconomic populations, or other diverse communities that have an interest in or might otherwise be impacted by the Project.

The Consultant shall assist in the development and dissemination of communications with any identified diverse or disadvantaged communities. The Consultant shall work with OCTA, including the Diverse Community Outreach Team, on this effort.

Project Identity and Branding

The Consultant shall work with the OCTA Outreach Project Manager to review, maintain, and/or enhance the Project's identity and branding. The Consultant shall complement existing OCTA, Caltrans, and OC Go branding elements with new, value-added content.

Copywriting and Collateral Materials

The Consultant shall write copy for fact sheets, webpages, newsletters, presentations, flyers, direct mailers, correspondence, social media, and other collateral. The content

must be clear, informative or educational, and appealing to the target audience. All content will be reviewed by OCTA prior to publication or distribution.

The Consultant shall produce graphics, images, illustrations, drawings, and the like to explain the construction Project, traffic management plan, structures, field conditions, and other matters that will help increase the public's understanding of the Project. OCTA welcomes the use of new and cost-effective technology to share information about freeway improvement projects. All content will be reviewed by OCTA prior to publication or distribution.

Communities

Primary Corridor Cities

- Anaheim
- Fullerton
- Orange
- Placentia

Neighboring Cities/Communities

- Anaheim Hills
- Brea
- Buena Park
- Garden Grove
- Santa Ana
- Yorba Linda
- Villa Park

Additional Communities

- Riverside County commuters
- Los Angeles County commuters
- San Bernardino County commuters
- Weekend/recreational travelers

Target Audiences

- Elected officials
- Residents
- Merchants
- Commuters and Motorists
- Bicyclists
- Pedestrians
- Chambers of Commerce
- Churches
- Community Based Organizations
- Large and small employers
- Homeowners associations
- Schools, colleges, and universities

- Hospitals and medical centers
- First responders
- Major shopping and entertainment venues
- Tourism industry
- Media
- Traffic reporters
- Regional airports
- Trucking and delivery industries

Waze

Waze (<u>http://www.waze.com/</u>) is a free, real-time crowdsourced traffic and navigation tool powered by the world's largest community of drivers. Consultant shall leverage Waze to provide near-real-time, agency-approved construction and road closure data that will affect users' daily routes and continue to troubleshoot any challenges that may arise during construction.

Interactive Map

Consultant shall create an interactive map with detailed closure and detour information, as well as other content about scheduled construction activities. The Consultant must have the resources available to update this map daily if needed.

OCTA Website

The Project has a website that includes general Project information, and frequently asked questions, and that will include closure, detour, and other construction-related information. Consultant must coordinate with OCTA digital services staff to update content, including daily closure and detour list, as needed.

OTHER OUTREACH SUPPORT

Government Relations

The OCTA Government Relations Department leads all communications with local, state, and federal elected officials and their staff, including coordinating meetings and correspondence. The OCTA Outreach Project Manager and the Consultant shall provide advisory and support services, including providing background on issues, key messages, and other support as necessary.

Media Relations

The OCTA Public Information Office leads communications with all print, television, radio, and online media. The OCTA Outreach Project Manager and the Consultant will provide advisory and support services, including providing background on issues, key messages, and other support as necessary.

Special Events Planning

The Consultant may be required to provide event production, management, and/or support, including for groundbreaking or milestone events. The Consultant shall be responsible for planning and executing the events, coordinating logistics with the Project contractor and City staff, and seeking appropriate speakers. The Consultant shall be asked to retain vendors and invite sponsorships, including for audio, staging and seating, event signage, and other event materials.

Evaluation

The Consultant may be asked to evaluate the Project construction outreach program quarterly to measure the effectiveness of communication tactics. The Consultant may be requested to create quantitative surveys on general Project awareness and level of satisfaction with outreach efforts, as needed.

Other Tasks Deemed Necessary

The Consultant shall provide other outreach services and support in the event of unforeseen or unanticipated circumstances.

EXHIBIT B: COST AND PRICE FORMS

PRICE SUMMARY SHEET

REQUEST FOR PROPOSALS (RFP) 2-2796

Pricing Instructions:

The Offeror must submit this Exhibit B, Price Summary Sheet, <u>as a separate sealed package</u> <u>from the proposal</u>. No information regarding hourly rates shall be mentioned anywhere in the proposal content.

The Offeror shall provide proposed price for the services described in the Scope of Work, Exhibit A. Hourly rates shall be fully-burdened rates to include all direct costs, indirect costs, tax, and profits. The Authority's intention is to award a time-and-expense price contract.

Pricing forms must be completed and properly filled out in order to be deemed responsive.

SCHEDULE I --- HOURLY RATE SCHEDULE

Enter below the proposed price for the services described in the Scope of Work, Exhibit A. Prices shall be fully-burdened rates to include all direct costs, indirect costs, tax, and profits. *Anticipated overtime pay shall not be factored into the fully-burdened hourly rates. The Authority's intention is to award a time-and-expense price contract.

	Fully-Burdened Hourly Rates					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Job	Effective –	4/1/24 -	4/1/25 –	4/1/26 -	4/1/27 –	4/1/28 –
Function	3/31/24	3/31/25	3/31/26	3/31/27	3/31/28	3/31/29
Project	¢	¢	¢	¢	¢	¢
Manager	Ψ	Ψ	Ψ	Ψ	Ψ	Ψ
Community	\$	\$	\$	\$	\$	\$
Liaison	Ψ	Ψ	Ψ	Ψ	Ψ	Ψ
Account	¢	¢	¢	¢	¢	¢
Coordinator	Φ	Φ	Φ	Φ	Φ	Φ
Graphic	¢	¢	¢	¢	¢	¢
Designer	Φ	Φ	Φ	Φ	Φ	Φ

Initial Term: Effective – March 31, 2029

FOR COST ANALYSIS PURPOSES:

- Provide fully-burdened hourly rates for the above-designated job categories. The fullyburdened hourly rates will be included in the resulting agreement should your proposal be selected for contract award.
- Each proposed hourly rate for the respective Job Function will be weighed according to the percentages specified in the "Evaluation Weight" column in the table below.

Job Function	Evaluation Weight for Hourly Rate(s)
Project Manager	15%
Community Liaison	40%
Account Coordinator	25%
Graphic Designer	20%

Other Labor Charges:

	Fully-Burdened Hourly Rates					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Job	Effective –	4/1/24 –	4/1/25 –	4/1/26 –	4/1/27 –	4/1/28 –
Function	3/31/24	3/31/25	3/31/26	3/31/27	3/31/28	3/31/29
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$

Option Term: April 1, 2029 – March 31, 2032

Job Eurotion	Fully-Burdened Hourly Rate					
	4/1/29 – 3/31/30	4/1/30 – 3/31/31	4/1/30 – 3/31/32			
Project Manager	\$	\$	\$			
Community Liaison	\$	\$	\$			
Account Coordinator	\$	\$	\$			
Graphic Designer	\$	\$	\$			

Other Labor Charges:

Job Eurotion	Fully-Burdened Hourly Rate				
	4/1/29 – 3/31/30	4/1/30 – 3/31/31	4/1/30 – 3/31/32		
	\$	\$	\$		
	\$	\$	\$		
	\$	\$	\$		
	\$	\$	\$		

SCHEDULE II ---- OTHER DIRECT COSTS SCHEDULE

	Type of ODC	Quantity	Unit Rate	Budget Amount
1.				
2.				
3.				
4.				
5.				
6.				

Additional ODC required and authorized by the Authority but not included in this Agreement will be reimbursed either (a) "At Cost" OR (b) up to the applicable Current Rate listed in this Schedule II, whichever is less.

Supporting documentation must accompany invoice.

* Please note the following:

- The Authority will not reimburse Consultant for hours charged to perform activities associated with the preparation and review of invoices submitted to the Authority.
- The Authority will not reimburse Consultant for local meals and travel time, unless previously approved, or any other expenses not included within this Exhibit B.

Reimbursable Mileage Practice

Week Day Travel

Normal Business Hours

 Office Base* to event/meeting (one-way only if Consultant does not return to base office)

After Business Hours

- Office Base* to event/meeting
- Event/Meeting to Home

Week End Travel

- Home to Event
- Event to Home

*Office Base exceeds 50 miles may claim home to event.

Note: Full home address is not necessary. Cross streets and city are sufficient.

- 1. I acknowledge receipt of **RFP 2-2796** and Addenda No.(s) _____
- 2. This offer shall remain firm for ______ days from the date of proposal. (Minimum of 120)

COMPANY NAME	
ADDRESS	
TELEPHONE	
FACSIMILE #	
EMAIL ADDRESS	
SIGNATURE OF PERSON AUTHORIZED TO BIND OFFEROR	
NAME AND TITLE OF PERSON	
DATE SIGNED	

EXHIBIT C: PROPOSED AGREEMENT

PROPOSED AGREEMENT NO. C-2-2796

BETWEEN

ORANGE COUNTY TRANSPORTATION AUTHORITY

AND

THIS AGREEMENT is effective this ______ day of ______, 2023 ("Effective Date"), by and between the Orange County Transportation Authority, 550 South Main Street, P.O. Box 14184, Orange, California 92863-1584, a public corporation of the State of California (hereinafter referred to as "AUTHORITY"), and , , , (hereinafter referred to as "CONSULTANT").

WITNESSETH:

WHEREAS, AUTHORITY requires assistance from CONSULTANT to develop and implement an effective and comprehensive public outreach program for the pre-construction and construction phases of the State Route 91 Improvement Project from Acacia Street to Lakeview Avenue; and

WHEREAS, said work cannot be performed by the regular employees of AUTHORITY; and

WHEREAS, CONSULTANT has represented that it has the requisite personnel and experience, and is capable of performing such services; and

WHEREAS, CONSULTANT wishes to perform these services;

NOW, THEREFORE, it is mutually understood and agreed by AUTHORITY and CONSULTANT as follows:

ARTICLE 1. COMPLETE AGREEMENT

A. This Agreement, including all exhibits and documents incorporated herein and made applicable by reference, constitutes the complete and exclusive statement of the terms and conditions of this Agreement between AUTHORITY and CONSULTANT and it supersedes all prior representations, understandings and communications. The invalidity in whole or in part of any term or condition of this Agreement shall not affect the validity of other terms or conditions.

B. AUTHORITY's failure to insist in any one or more instances upon CONSULTANT's

EXHIBIT C

performance of any terms or conditions of this Agreement shall not be construed as a waiver or relinquishment of AUTHORITY's right to such performance or to future performance of such terms or conditions and CONSULTANT's obligation in respect thereto shall continue in full force and effect. Changes to any portion of this Agreement shall not be binding upon AUTHORITY except when specifically confirmed in writing by an authorized representative of AUTHORITY by way of a written amendment to this Agreement and issued in accordance with the provisions of this Agreement.

ARTICLE 2. AUTHORITY DESIGNEE

The Chief Executive Officer of AUTHORITY, or designee, shall have the authority to act for and exercise any of the rights of AUTHORITY as set forth in this Agreement.

ARTICLE 3. SCOPE OF WORK

A. CONSULTANT shall perform the work necessary to complete in a manner satisfactory to AUTHORITY the services set forth in Exhibit A, entitled "Scope of Work," attached to and, by this reference, incorporated in and made a part of this Agreement. All services shall be provided at the times and places designated by AUTHORITY.

B. CONSULTANT shall provide the personnel listed below to perform the above-specified services, which persons are hereby designated as key personnel under this Agreement.

<u>Names</u>

Functions

C. No person named in paragraph B of this Article, or his/her successor approved by AUTHORITY, shall be removed or replaced by CONSULTANT, nor shall his/her agreed-upon function or level of commitment hereunder be changed, without the prior written consent of AUTHORITY. Should the services of any key person become no longer available to CONSULTANT, the resume and qualifications of the proposed replacement shall be submitted to AUTHORITY for approval as soon as

EXHIBIT C

possible, but in no event later than seven (7) calendar days prior to the departure of the incumbent key person, unless CONSULTANT is not provided with such notice by the departing employee. AUTHORITY shall respond to CONSULTANT within seven (7) calendar days following receipt of these qualifications concerning acceptance of the candidate for replacement.

ARTICLE 4. TERM OF AGREEMENT

A. This Agreement shall commence upon execution by both parties, and shall continue in full force and effect through March 31, 2029 (Initial Term), unless earlier terminated or extended as provided in this Agreement.

B. AUTHORITY, at its sole discretion, may elect to extend the term of this Agreement up to an additional thirty-six (36) months, commencing April 1, 2029, and continuing through March 31, 2032 (Option Term), and thereupon require CONSULTANT to continue to provide services, and otherwise perform, in accordance with Exhibit A, entitled "Scope of Work," and at the rates set forth in Article 5, "Allowable Costs and Payment."

C. AUTHORITY's election to extend the Agreement beyond the Initial Term shall not diminish its right to terminate the Agreement for AUTHORITY's convenience or CONSULTANT's default as provided elsewhere in this Agreement. The "maximum term" of this Agreement shall be the period extending through March 31, 2032, which period encompasses the Initial Term and Option Term.

ARTICLE 5. PAYMENT

A. For CONSULTANT's full and complete performance of its obligations under this Agreement and subject to the maximum cumulative payment obligation provisions set forth in Article 6, AUTHORITY shall pay CONSULTANT on a time-and-expense basis in accordance with the following provisions.

B. CONSULTANT shall invoice AUTHORITY on a monthly basis for payments corresponding to the work actually completed by CONSULTANT. Drive time may not be charged to AUTHORITY. Work completed shall be documented in a monthly progress report prepared by CONSULTANT, which shall accompany each invoice submitted by CONSULTANT. AUTHORITY shall pay CONSULTANT at the hourly labor rates specified in Exhibit B, entitled "Price Summary Sheet," which is attached to and by this

EXHIBIT C

reference, incorporated in and made a part of this Agreement. These rates shall remain fixed for the term of this Agreement and are acknowledged to include CONSULTANT's overhead costs, general costs, administrative costs and profit. CONSULTANT shall also furnish such other information as may be requested by AUTHORITY to substantiate the validity of an invoice. At its sole discretion, AUTHORITY may decline to make full payment until such time as CONSULTANT has documented to AUTHORITY's satisfaction, that CONSULTANT has fully completed all work required. AUTHORITY's payment in full shall constitute AUTHORITY's final acceptance of CONSULTANT's work.

C. Invoices shall be submitted by CONSULTANT on a monthly basis and shall be submitted in duplicate to AUTHORITY's Accounts Payable office. CONSULTANT may also submit invoices electronically to AUTHORITY's Accounts Payable Department at <u>vendorinvoices@octa.net</u>. Each invoice shall be accompanied by the monthly progress report specified in paragraph B of this Article. AUTHORITY shall remit payment within thirty (30) calendar days of the receipt and approval of each invoice. Each invoice shall include the following information:

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Agreement No. C-2-2796;

Specify the effort for which the payment is being requested;

3.

1.

2.

The time period covered by the invoice;

4. Labor (staff name, hours charged, hourly billing rate, current charges, and cumulative charges) performed during the billing period;

5. Total monthly invoice (including project-to-date cumulative invoice amount);

6. Itemized expenses including support documentation incurred during the billing period;

7.

Monthly Progress Report;

8. Certification signed by the CONSULTANT or his/her designated alternate that a) The invoice is a true, complete and correct statement of reimbursable costs and progress; b) The backup information included with the invoice is true, complete and correct in all material respects; c) All payments due and owing to subcontractors and suppliers have been made; d) Timely payments will be made to

EXHIBIT C

subcontractors and suppliers from the proceeds of the payments covered by the certification and; e) The invoice does not include any amount which CONSULTANT intends to withhold or retain from a subcontractor or supplier unless so identified on the invoice.

9. Any other information as agreed or requested by AUTHORITY to substantiate the validity of an invoice.

ARTICLE 6. MAXIMUM OBLIGATION

Notwithstanding any provisions of this Agreement to the contrary, AUTHORITY and CONSULTANT mutually agree that AUTHORITY's maximum cumulative payment obligation (including obligation for CONSULTANT's profit) shall be ______ Dollars (\$______.00) which shall include all amounts payable to CONSULTANT for its subcontracts, leases, materials and costs arising from, or due to termination of, this Agreement.

ARTICLE 7. NOTICES

All notices hereunder and communications regarding the interpretation of the terms of this Agreement, or changes thereto, shall be effected by delivery of said notices in person or by depositing said notices in the U.S. mail, registered or certified mail, returned receipt requested, postage prepaid and addressed as follows:

To CONSULTANT:	To AUTHORITY:
	Orange County Transportation Authority
	550 South Main Street
	P.O. Box 14184
	Orange, California 92863-1584
ATTENTION:	ATTENTION: Iris Deneau
Title:	Title: Senior Contract Administrator
Phone:	Phone: (714) 560 - 5786
Email:	Email: ideneau@octa.net
/	

EXHIBIT C

ARTICLE 8. INDEPENDENT CONTRACTOR

A. CONSULTANT's relationship to AUTHORITY in the performance of this Agreement is that of an independent contractor. CONSULTANT's personnel performing services under this Agreement shall at all times be under CONSULTANT's exclusive direction and control and shall be employees of CONSULTANT and not employees of AUTHORITY. CONSULTANT shall pay all wages, salaries and other amounts due its employees in connection with this Agreement and shall be responsible for all reports and obligations respecting them, such as social security, income tax withholding, unemployment compensation, workers' compensation and similar matters.

B. Should CONSULTANT's personnel or a state or federal agency allege claims against AUTHORITY involving the status of AUTHORITY as employer, joint or otherwise, of said personnel, or allegations involving any other independent contractor misclassification issues, CONSULTANT shall defend and indemnify AUTHORITY in relation to any allegations made.

ARTICLE 9. INSURANCE

A. CONSULTANT shall procure and maintain insurance coverage in full force and effect during the entire term of the Agreement. Coverage shall be full coverage and not subject to self-insurance provisions. CONSULTANT shall provide the following insurance coverage:

 Commercial General Liability, to include Products/Completed Operations, Independent Contractors', Contractual Liability, Advertising and Personal Injury Liability, and Property Damage with a minimum limit of \$1,000,000 per occurrence, \$2,000,000 general aggregate and \$2,000,000 Products/Completed Operations aggregate;

2. Automobile Liability Insurance to include owned, hired and non-owned autos with a combined single limit of \$1,000,000 for each accident;

3. Workers' Compensation with limits as required by the State of California including a Waiver of Subrogation in favor of AUTHORITY, its officers, directors and employees; and

4. Employers' Liability with minimum limits of \$1,000,000 per accident, \$1,000,000 policy limit-disease, and \$1,000,000 policy limit employee-disease.

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B. Proof of such coverage, in the form of a certificate of insurance and an insurance policy blanket additional insured endorsement, designating AUTHORITY, its officers, directors and employees as additional insureds on general liability and automobile liability, as required by Agreement. Proof of insurance coverage must be received by AUTHORITY within ten (10) calendar days from the effective date of the Agreement and prior to commencement of any work. Such insurance shall be primary and non-contributive to any insurance or self-insurance maintained by AUTHORITY. Furthermore, AUTHORITY reserves the right to request certified copies or review all related insurance policies, in response to a related loss.

C. CONSULTANT shall include on the face of the certificate of insurance the Agreement No. C-2-2796 and, the Senior Contract Administrator's Name, Iris Deneau.

D. CONSULTANT shall also include in each subcontract, the stipulation that subconsultants shall maintain insurance coverage in the amounts required of CONSULTANT as provided in the Agreement.
Subconsultants will be required to include AUTHORITY as additional insureds on the Commercial General Liability, and Auto Liability insurance policies.

E. CONSULTANT must provide AUTHORITY with at least thirty (30) days' prior notice of cancellation or material modification of coverage, and ten (10) days' prior notice for non-payment of premium.

ARTICLE 10. ORDER OF PRECEDENCE

Conflicting provisions hereof, if any, shall prevail in the following descending order of precedence: (1) the provisions of this Agreement, including all exhibits; (2) the provisions of RFP 2-2796; (3) CONSULTANT's proposal dated _____; (4) all other documents, if any, cited herein or incorporated by reference.

ARTICLE 11. CHANGES

By written notice or order, AUTHORITY may, from time to time, order work suspension and/or make changes in the general scope of this Agreement, including, but not limited to, the services furnished to AUTHORITY by CONSULTANT as described in the Scope of Work. If any such work suspension or

EXHIBIT C

change causes an increase or decrease in the price of this Agreement, or in the time required for its performance, CONSULTANT shall promptly notify AUTHORITY thereof and assert its claim for adjustment within ten (10) calendar days after the change or work suspension is ordered, and an equitable adjustment shall be negotiated. However, nothing in this clause shall excuse CONSULTANT from proceeding immediately with the Agreement as changed.

ARTICLE 12. DISPUTES

A. Except as otherwise provided in this Agreement, when a dispute arises between CONSULTANT and AUTHORITY, the project managers shall meet to resolve the issue. If project managers do not reach a resolution, the dispute will be decided by AUTHORITY's Director of Contracts Administration and Materials Management (CAMM), who shall reduce the decision to writing and mail or otherwise furnish a copy thereof to CONSULTANT. The decision of the Director, CAMM, shall be the final and conclusive administrative decision.

B. Pending final decision of a dispute hereunder, CONSULTANT shall proceed diligently with the performance of this Agreement and in accordance with the decision of AUTHORITY's Director, CAMM. Nothing in this Agreement, however, shall be construed as making final the decision of any AUTHORITY official or representative on a question of law, which questions shall be settled in accordance with the laws of the State of California.

ARTICLE 13. TERMINATION

A. AUTHORITY may terminate this Agreement for its convenience at any time, in whole or part, by giving CONSULTANT written notice thereof. Upon said notice, AUTHORITY shall pay CONSULTANT its allowable costs incurred to date of termination and those allowable costs determined by AUTHORITY to be reasonably necessary to effect such termination. Thereafter, CONSULTANT shall have no further claims against AUTHORITY under this Agreement.

B. In the event either Party defaults in the performance of any of their obligations under this Agreement or breaches any of the provisions of this Agreement, the non-defaulting Party shall have the option to terminate this Agreement upon thirty (30) days' prior written notice to the other Party. Upon

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receipt of such notice, CONSULTANT shall immediately cease work, unless the notice from AUTHORITY provides otherwise. Upon receipt of the notice from AUTHORITY, CONSULTANT shall submit an invoice for work and/or services performed prior to the date of termination. AUTHORITY shall pay CONSULTANT for work and/or services satisfactorily provided to the date of termination in compliance with this Agreement. Thereafter, CONSULTANT shall have no further claims against AUTHORITY under this Agreement. AUTHORITY shall not be liable for any claim of lost profits or damages for such termination.

ARTICLE 14. INDEMNIFICATION

CONSULTANT shall indemnify, defend and hold harmless AUTHORITY, its officers, directors, employees and agents (indemnities) from and against any and all claims (including attorneys' fees and reasonable expenses for litigation or settlement) for any loss or damages, bodily injuries, including death, damage to or loss of use of property caused by the negligent acts, omissions or willful misconduct by CONSULTANT, its officers, directors, employees, agents, subconsultants or suppliers in connection with or arising out of the performance of this Agreement.

ARTICLE 15. ASSIGNMENTS AND SUBCONTRACTS

A. Neither this Agreement nor any interest herein nor claim hereunder may be assigned by CONSULTANT either voluntarily or by operation of law, nor may all or any part of this Agreement be subcontracted by CONSULTANT, without the prior written consent of AUTHORITY. Consent by AUTHORITY shall not be deemed to relieve CONSULTANT of its obligations to comply fully with all terms and conditions of this Agreement.

B. AUTHORITY hereby consents to CONSULTANT's subcontracting portions of the Scope of
Work to the parties identified below for the functions described in CONSULTANT's proposal.
CONSULTANT shall include in the subcontract agreement the stipulation that CONSULTANT, not
AUTHORITY, is solely responsible for payment to the subcontractor for the amounts owing and that the
subcontractor shall have no claim, and shall take no action, against AUTHORITY, its officers, directors,
employees or sureties for nonpayment by CONSULTANT.

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Subcontractor Function

ARTICLE 16. AUDIT AND INSPECTION OF RECORDS

CONSULTANT shall provide AUTHORITY, or other agents of AUTHORITY, such access to CONSULTANT's accounting books, records, payroll documents and facilities, as AUTHORITY deems necessary. CONSULTANT shall maintain such books, records, data and documents in accordance with generally accepted accounting principles and shall clearly identify and make such items readily accessible to such parties during CONSULTANT's performance hereunder and for a period of four (4) years from the date of final payment by AUTHORITY. AUTHORITY's right to audit books and records directly related to this Agreement shall also extend to all first-tier subcontractors identified in 0 of this Agreement. CONSULTANT shall permit any of the foregoing parties to reproduce documents by any means whatsoever or to copy excerpts and transcriptions as reasonably necessary.

ARTICLE 17. CONFLICT OF INTEREST

CONSULTANT agrees to avoid organizational conflicts of interest. An organizational conflict of interest means that due to other activities, relationships or contracts, the CONSULTANT is unable, or potentially unable to render impartial assistance or advice to the AUTHORITY; CONSULTANT's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or the CONSULTANT has an unfair competitive advantage. CONSULTANT is obligated to fully disclose to the AUTHORITY in writing Conflict of Interest issues as soon as they are known to the CONSULTANT. All disclosures must be submitted in writing to AUTHORITY pursuant to the Notice provision herein. This disclosure requirement is for the entire term of this Agreement.

ARTICLE 18. CODE OF CONDUCT

CONSULTANT agrees to comply with the AUTHORITY's Code of Conduct as it relates to Third-Party contracts which is hereby referenced and by this reference is incorporated herein. CONSULTANT agrees to include these requirements in all of its subcontracts.

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ARTICLE 19. PROHIBITION ON PROVIDING ADVOCACY SERVICES

CONSULTANT and all subconsultants performing work under this Agreement, shall be prohibited from concurrently representing or lobbying for any other party competing for a contract with AUTHORITY, either as a prime consultant or subconsultant. Failure to refrain from such representation may result in termination of this Agreement.

ARTICLE 20. FEDERAL, STATE AND LOCAL LAWS

CONSULTANT warrants that in the performance of this Agreement, it shall comply with all applicable federal, state and local laws, statutes and ordinances and all lawful orders, rules and regulations promulgated thereunder.

ARTICLE 21. EQUAL EMPLOYMENT OPPORTUNITY

In connection with its performance under this Agreement, CONSULTANT shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. CONSULTANT shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, age or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

ARTICLE 22. PROHIBITED INTERESTS

CONSULTANT covenants that, for the term of this Agreement, no director, member, officer or employee of AUTHORITY during his/her tenure in office or for one (1) year thereafter shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

ARTICLE 23. OWNERSHIP OF REPORTS AND DOCUMENTS

A. The originals of all letters, documents, reports and other products and data produced under this Agreement shall be delivered to, and become the property of AUTHORITY. Copies may be made for CONSULTANT's records but shall not be furnished to others without written authorization from AUTHORITY. Such deliverables shall be deemed works made for hire and all rights in copyright therein

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shall be retained by AUTHORITY.

B. All ideas, memoranda, specifications, plans, manufacturing, procedures, drawings, descriptions, and all other written information submitted to CONSULTANT in connection with the performance of this Agreement shall not, without prior written approval of AUTHORITY, be used for any purposes other than the performance under this Agreement, nor be disclosed to an entity not connected with the performance of the project. CONSULTANT shall comply with AUTHORITY's policies regarding such material. Nothing furnished to CONSULTANT, which is otherwise known to CONSULTANT or is or becomes generally known to the related industry shall be deemed confidential. CONSULTANT shall not use AUTHORITY's name, photographs of the project, or any other publicity pertaining to the project in any professional publication, magazine, trade paper, newspaper, seminar or other medium without the express written consent of AUTHORITY.

C. No copies, sketches, computer graphics or graphs, including graphic artwork, are to be released by CONSULTANT to any other person or agency except after prior written approval by AUTHORITY, except as necessary for the performance of services under this Agreement. All press releases, including graphic display information to be published in newspapers, magazines, etc., are to be handled only by AUTHORITY unless otherwise agreed to by CONSULTANT and AUTHORITY.

ARTICLE 24. PATENT AND COPYRIGHT INFRINGEMENT

A. In lieu of any other warranty by AUTHORITY or CONSULTANT against patent or copyright infringement, statutory or otherwise, it is agreed that CONSULTANT shall defend at its expense any claim or suit against AUTHORITY on account of any allegation that any item furnished under this Agreement or the normal use or sale thereof arising out of the performance of this Agreement, infringes upon any presently existing U.S. letters patent or copyright and CONSULTANT shall pay all costs and damages finally awarded in any such suit or claim, provided that CONSULTANT is promptly notified in writing of the suit or claim and given authority, information and assistance at CONSULTANT's expense for the defense of same. However, CONSULTANT will not indemnify AUTHORITY if the suit or claim results from: (1) AUTHORITY's alteration of a deliverable, such that said deliverable in its altered form infringes

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upon any presently existing U.S. letters patent or copyright; or (2) the use of a deliverable in combination with other material not provided by CONSULTANT when such use in combination infringes upon an existing U.S. letters patent or copyright.

B. CONSULTANT shall have sole control of the defense of any such claim or suit and all negotiations for settlement thereof. CONSULTANT shall not be obligated to indemnify AUTHORITY under any settlement made without CONSULTANT's consent or in the event AUTHORITY fails to cooperate fully in the defense of any suit or claim, provided, however, that said defense shall be at CONSULTANT's expense. If the use or sale of said item is enjoined as a result of such suit or claim, CONSULTANT, at no expense to AUTHORITY, shall obtain for AUTHORITY the right to use and sell said item, or shall substitute an equivalent item acceptable to AUTHORITY and extend this patent and copyright indemnity thereto.

ARTICLE 25. FINISHED AND PRELIMINARY DATA

A. All of CONSULTANT's finished technical data, including but not limited to illustrations, photographs, tapes, software, software design documents, including without limitation source code, binary code, all media, technical documentation and user documentation, photoprints and other graphic information required to be furnished under this Agreement, shall be AUTHORITY's property upon payment and shall be furnished with unlimited rights and, as such, shall be free from proprietary restriction except as elsewhere authorized in this Agreement. CONSULTANT further agrees that it shall have no interest or claim to such finished, AUTHORITY-owned, technical data; furthermore, said data is subject to the provisions of the Freedom of Information Act, 5 USC 552.

B. It is expressly understood that any title to preliminary technical data is not passed to AUTHORITY but is retained by CONSULTANT. Preliminary data includes roughs, visualizations, software design documents, layouts and comprehensives prepared by CONSULTANT solely for the purpose of demonstrating an idea or message for AUTHORITY's acceptance before approval is given for preparation of finished artwork. Preliminary data title and right thereto shall be made available to AUTHORITY if CONSULTANT causes AUTHORITY to exercise Article 11, and a price shall be

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negotiated for all preliminary data.

ARTICLE 26. FORCE MAJEURE

Either party shall be excused from performing its obligations under this Agreement during the time and to the extent that it is prevented from performing by an unforeseeable cause beyond its control, including but not limited to: any incidence of fire, flood; acts of God; commandeering of material, products, plants or facilities by the federal, state or local government; national fuel shortage; or a material act or omission by the other party; when satisfactory evidence of such cause is presented to the other party, and provided further that such nonperformance is unforeseeable, beyond the control and is not due to the fault or negligence of the party not performing.

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ARTICLE 27. HEALTH AND SAFETY REQUIREMENT

CONSULTANT shall comply with all the requirements set forth in Exhibit _, Level 2 Safety Specifications.
	PROPOSED AGREEMENT NO. C-2-279
	EXHIBIT
VHEREOF, the pa	arties hereto have caused this Agreement No. C-2-2796 to t
e of the last signat	ure below.
	ORANGE COUNTY TRANSPORTATION AUTHOR
	By: Darrell E. Johnson Chief Executive Officer
	APPROVED AS TO FORM:
	Bv:
	James M. Donich
	APPROVED:
	By:
	Executive Director, People and Community

EXHIBIT D: STATUS OF PAST AND PRESENT CONTRACTS FORM

STATUS OF PAST AND PRESENT CONTRACTS FORM

On the form provided below, Offeror/Bidder shall list the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract.

A separate form must be completed for each contract. Offeror/Bidder shall provide an accurate contact name and telephone number for each contract and indicate the term of the contract and the original contract value. Offeror/Bidder shall also provide a brief summary and the current status of the litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations. If the contract was terminated. list the reason for termination.

Offeror/Bidder shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of the bid. Each form must be signed by an officer of the Offeror/Bidder confirming that the information provided is true and accurate.

Project city/agency/other:	
Contact Name:	Phone:
Project Award Date:	Original Contract Value:
Term of Contract:	
(1) Litigation, claims, settlements	, arbitrations, or investigations associated with contract:
(2) Summary and Status of contract	st:
(3) Summary and Status of action	identified in (1):
(4) Reason for termination, if appli	cable:
By signing this Form entitled "Statu	s of Past and Present Contracts," I am affirming that all of the

information provided is true and accurate.

Name

Signature

Title

Date

Revised. 03/16/2018

EXHIBIT E: CAMPAIGN CONTRIBUTION DISCLOSURE FORM

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

Information Sheet

ORANGE COUNTY TRANSPORTATION AUTHORITY

The attached Campaign Contribution Disclosure Form must be completed by applicants for, or persons who are the subject of, any proceeding involving a license, permit, or other entitlement for use pending before the Board of Directors of the OCTA or any of its affiliated agencies. (Please see next page for definitions of these terms.)

IMPORTANT NOTICE

Basic Provisions of Government Code Section 84308

- A. If you are an applicant for, or the subject of, any proceeding involving a license, permit, or other entitlement for use, you are prohibited from making a campaign contribution of more than \$250 to any board member or his or her alternate. This prohibition begins on the date your application is filed or the proceeding is otherwise initiated, and the prohibition ends three months after a final decision is rendered by the Board of Directors. In addition, no board member or alternate may solicit or accept a campaign contribution of more than \$250 from you during this period.
- B. These prohibitions also apply to your agents, and, if you are a closely held corporation, to your majority shareholder as well. These prohibitions also apply to your subcontractor(s), joint venturer(s), and partner(s) in this proceeding. Also included are parent companies and subsidiary companies directed and controlled by you, and political action committees directed and controlled by you.
- C. You must file the attached disclosure form and disclose whether you or your agent(s) have in the aggregate contributed more than \$250 to any board member or his or her alternate during the 12-month period preceding the filing of the application or the initiation of the proceeding.
- D. If you or your agent have in the aggregate contributed more than \$250 to any individual board member or his/or her alternate during the 12 months preceding the decision on the application or proceeding, that board member or alternate must disqualify himself or herself from the decision. However, disqualification is not required if the board member or alternate returns the campaign contribution within 30 days from the time the director knows, or should have known, about both the contribution and the fact that you are a party in the proceeding. The Campaign Contribution Disclosure Form should be completed and filed with your proposal, or with the first written document you file or submit after the proceeding commences.

- 1. A proceeding involving "a license, permit, or other entitlement for use" includes all business, professional, trade and land use licenses and permits, and all other entitlements for use, including all entitlements for land use, all contracts (other than competitively bid, labor or personal employment contracts), and all franchises.
- 2. Your "agent" is someone who represents you in connection with a proceeding involving a license, permit or other entitlement for use. If an individual acting as an agent is also acting in his or her capacity as an employee or member of a law, architectural, engineering, consulting firm, or similar business entity, both the business entity and the individual are "agents."
- 3. To determine whether a campaign contribution of more than \$250 has been made by you, campaign contributions made by you within the preceding 12 months must be aggregated with those made by your agent within the preceding 12 months or the period of the agency, whichever is shorter. Contributions made by your majority shareholder (if a closely held corporation), your subcontractor(s), your joint venturer(s), and your partner(s) in this proceeding must also be included as part of the aggregation. Campaign contributions made to different directors or their alternates are not aggregated.
- 4. A list of the members and alternates of the Board of Directors is attached.

This notice summarizes the major requirements of Government Code Section 84308 of the Political Reform Act and California Code of Regulations, Title 2 Sections 18438-18438.8.

ORANGE COUNTY TRANSPORTATION AUTHORITY CAMPAIGN CONTRIBUTION DISCLOSURE FORM

RFP Number:	RFP Title:
Was a campaign contribution made to an regardless of dollar amount of the contributior agent/lobbyist? Yes	y OCTA Board Member within the preceding 12 months h by either the proposing firm, proposed subconsultants and/or No
If no, please sign and date below.	
If yes, please provide the following information	on:
Prime Contractor Firm Name:	
Contributor or Contributor Firm's Name:	
Contributor or Contributor Firm's Address: _	
Is Contributor:	
• The Prime Contractor	Yes No
 Subconsultant Agent/Lobbyist bired by Prime 	Yes No
to represent the Prime in this RFP	Yes No
Identify the Board Member(s) to whom you, contributions, the name of the contributor, the amount of the contribution. Each date must in	your subconsultants, and/or agent/lobbyist made campaigr dates of contribution(s) in the preceding 12 months and dollar nclude the exact month, day, and year of the contribution.
Name of Board Member:	
Name of Contributor:	
Date(s) of Contribution(s):	
Amount(s):	
Name of Board Member:	
Name of Contributor:	
Date(s) of Contribution(s):	
Amount(s):	
Date:	Signature of Contributor
Print Firm Name	Print Name of Contributor

ORANGE COUNTY TRANSPORTATION AUTHORITY AND AFFILIATED AGENCIES

Board of Directors

Mark A. Murphy, Chairman Gene Hernandez, Vice Chairman Lisa A. Bartlett, Director **Doug Chaffee, Director Barbara Delgleize, Director** Andrew Do, Director Katrina Foley, Director **Brian Goodell, Director Patrick Harper, Director** Michael Hennessey, Director **Steve Jones, Director** Fred Jung, Director Joseph Muller, Director Tam Nguyen, Director Vicente Sarmiento, Director **Donald P. Wagner, Director**

EXHIBIT F: SAFETY SPECIFICATIONS

LEVEL 2 STANDARD HEALTH, SAFETY AND ENVIRONMENTAL SPECIFICATIONS

PART I – GENERAL

1.1 GENERAL HEALTH, SAFETY & ENVIRONMENTAL REQUIREMENTS

- A. The Contractor, its subcontractors, suppliers, and employees have the obligation to comply with all Authority health, safety and environmental compliance department (HSEC), requirements of this safety specification, project site requirements, and bus yard safety rules as well as all federal, state, and local regulations pertaining to scope of work or agreements with the Authority. Additionally, manufacturer requirements are considered incorporated by reference as applicable to this scope of work.
- B. Observance of repeated unsafe acts or conditions, serious violation of safety standards, non-conformance of Authority health, safety and environmental compliance department (HSEC) requirements, or disregard for the intent of these safety specifications to protect people and property, by Contractor or its subcontractors may be reason for termination of scope or agreements with the Authority, at the sole discretion of the Authority.
- C. INJURY AND ILLNESS PREVENTION PROGRAM

The Contractor shall comply with CCR Title 8, Section with California Code of Regulations (CCR) Title 8, Section 3203. The intent and elements of the IIPP shall be implemented and enforced by the Contractor and its sub-tier contractors, suppliers, and vendors. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.

D. SUBSTANCE ABUSE PREVENTION PROGRAM

Contractor shall comply with the Policy or Program of the Company's Substance Abuse Prevention Policy that complies with the most recent Drug Free Workplace Act. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.

- E. HAZARD COMMUNICATION PROGRAM
 - 1. Contractor shall comply with CCR Title 8, Section 5194 Hazard Communication Standard. Prior to use on Authority property and/or project work areas Contractor shall provide the Authority Project Manager copies of SDS for all applicable products used, if any. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.
 - 2. All chemicals including paint, solvents, detergents and similar substances shall comply with South Coast Air Quality Management District (SCAQMD) rules 103, 1113, and 1171.

F. STORM WATER POLLUTION PREVENTION PLAN

- 1. The Contractor shall protect property and water resources from fuels and similar products throughout the duration of the contract. Contractor shall comply with Storm Water Pollution Prevention Plan (SWPPP) requirements. The program or plan if required by scope shall be provided to the Authority's Project Manager, upon request, within 72 hours.
- G. DESIGNATED HEALTH, SAFETY, ENVIRONMENTAL (HSE) REPRESENTATIVE
 - 1. Upon contract award, the contractor within 10 business days shall designate a health and safety representative and provide a resume and qualifications to the Authority project manager, upon request, within 72 hours.
 - 2. This person shall be a Competent or Qualified Individual as defined by the Occupational, Safety, and Health Administration (OSHA), familiar with applicable CCR Title 8 Standards, and has the authority to affect changes in work procedures that may have associated cost, schedule and budget impacts.
 - 3. The Contractor's HSE Representative is subject to acceptance by the Authority Project Manager, and the HSEC Department. All contact information of the HSE Representative (name, phone, and fax and pager/cell phone number) shall be provided to the Authority Project Manager, upon request, within 72 hours.
 - 4. The Contractor's HSE Representative shall hold a current certification from the Board of Certified Safety Professionals (BCSP) and have five years of demonstrated construction/scope experience enforcing HSE compliance on construction, industrial or similar project scopes. The designated HSE Representative shall participate in any required HSE related submittals. The Authority reserves the right to allow for an exception and to modify these minimum qualification requirements for unforeseen circumstances, at the sole discretion of the Authority Project Manager and HSEC Department Manager.
 - 5. Competent Individual means an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and/or property, and who has authorization to take prompt corrective measures to eliminate them.
 - 6. Qualified Individual means an individual who by possession of a recognized degree, certificate, certification or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the Project.

H. SCOPE PLANNING

Prior to any scope work activity or task, the Contractor shall evaluate the hazards of the scope of work and the work environment to ensure proper control measures are identified for employee public and property protection measures to prevent incidents. This evaluation shall be implemented by developing a written site specific Job Hazard Analysis (JHA) or similar tool designed for planning the work to prevent incidents. The plan shall be provided to the Authority's Project Manager, upon request, within 72 hours.

I. ORIENTATION

- The Contractor shall conduct and document a project site safety orientation for all Contractor personnel, subcontractors, suppliers, vendors, and new employees assigned to the project prior to performing any work on Authority projects. The safety orientation at a minimum shall include, as applicable, Personal Protection Equipment (PPE) requirements, eye protection, ANSI class 2 or 3 reflective vests, designated smoking, eating, and parking areas, traffic speed limit and routing, cell phone policy, and barricade requirements. When required by scope, additional orientation shall include fall protection, energy isolation/lock-out/tag-out (LOTO), confined space, hot work permit, security requirements, and similar project safety requirements.
- 2. Copies of orientation documents shall be provided to the Authority Project Manager within 72 hours upon request.

J. TRAFFIC & PARKING

The Contractor shall ensure that all Contractor vehicles, including those of their subcontractors, suppliers, vendors and employees are parked in designated parking areas, personal vehicles shall be parked in the employee parking lot, work vehicles required in the maintenance area of a bus base shall be identified by company name and/or logo, covered by the company insurance, and comply with traffic routes, and posted traffic signs in areas other than the employee parking lots. Vehicles without appropriate company name and logo are considered personal vehicles and not allowed in the maintenance area of the bus base.

K. GENERAL PROVISIONS

- 1. The Contractor shall provide all necessary tools, equipment, and related safety protective devices to execute the scope of work in compliance with Authority's HSEC requirements, CCR Title 8 Standards, and recognized safe work practices.
- 2. The Contractor shall immediately notify the Authority's Project Manager whenever local, state or federal regulatory agency personnel are identified as being onsite.

- 3. The Authority HSEC requirements, and references contained within this scope of work shall not be considered all-inclusive as to the hazards that might be encountered. Safe work practices shall be pre-planned and performed, and safe conditions shall be maintained during the course of this work scope.
- 4. The Contractor shall specifically acknowledge that it has primary responsibility to prevent and correct all health, safety and environmental hazards for which it and its employees, or its subcontractors (and their employees) are responsible. The Contractor shall further acknowledge their expertise in recognition and prevention of hazards in the operations for which they are responsible, that the Authority may not have such expertise, and is relying upon the Contractor for such expertise. The Authority retains the right to notify the Contractor of potential hazards and request the Contractor to evaluate and, as necessary, to eliminate those hazards.
- 5. The Contractor shall instruct all its employees, and all associated subcontractors under contract with the Contractor who work on Authority property in the recognition, identification, and avoidance of unsafe acts and/or conditions applicable to its work.
- 6. California Code of Regulations (CCR) Title 8 Standards are minimum requirements, and each Contractor is encouraged to exceed minimum requirements. When the Contractor safety requirements exceed statutory standards, the more stringent requirements shall be achieved for the safeguard of the public and workers.

1.2 ENVIROMENTAL REQUIREMENTS

- A. The Contractor shall comply with Federal, State, county, municipal, and other local laws and regulations pertaining to the environment, including noise, aesthetics, air quality, water quality, contaminated soils, hazardous waste, storm water, and resources of archaeological significance. Expense of compliance with these laws and regulations is considered included in the agreement. Contractor shall provide water used for dust control, or for prewetting areas to be paved, as required; no payment will be made by OCTA for this water.
- B. The Contractor shall prevent pollution of storm drains, rivers, streams, irrigation ditches, and reservoirs with sediment or other harmful materials. Fuels, oils, bitumen, calcium chloride, cement, or other contaminants that would contribute to water pollution shall not be dumped into or placed where they will leach into storm drains, rivers, streams, irrigation ditches, or reservoirs. If operating equipment in streambeds or in and around open waters, protect the quality of ground water, wetlands, and surface waters.
- C. The Contractor shall protect adjacent properties and water resources from erosion and sediment damage throughout the duration of the contract. Contractor shall comply with applicable NPDES permits and Storm Water Pollution Prevention Plan (SWPPP) requirements.

D. Contractor shall comply with all applicable EPA, Cal EPA, Cal Recycle, DTSC, SCAQMD, local, state, county and city standards, rules and regulations for hazardous and special waste handling, recycling and/ disposal. At a minimum, Contractor shall ensure compliance where applicable with SCAQMD Rule 1166, CCR Title 8, Section 5192, 29 CFR Subpart 1910.120, 49 CFR Part 172, Subpart H, 40 CFR Subpart 265.16 and CCR Title 22 Section 6625.16. Contractor shall provide OCTA a schedule of all hazardous waste and special or industrial waste disposal dates in advance of transport date. Only authorized OCTA personnel shall sign manifests for OCTA generated wastes. Contractor shall ensure that only current registered transporters are used for disposal of hazardous waste and industrial wastes. The Contractor shall obtain approval from OCTA for the disposal site locations in advance of scheduled transport date.

1.3 INCIDENT NOTIFICATION AND INVESTIGATION

- A. The Authority shall be promptly notified of any of the following types of incidents including but not limited to:
 - 1. Damage incidents of property (incidents involving third party, contractor or Authority property damage);
 - 2. Reportable and/or Recordable injuries (as defined by the U. S. Occupational Safety and Health Administration), a minor injury, and near miss incidents;
 - 3. Incidents impacting the environment, i.e. spills or releases on Authority property.
- B. Notifications shall be made to Authority representatives, employees and/or agents. This includes incidents occurring to contractors, vendors, visitors, or members of the public that arise from the performance of Authority contract work. An immediate verbal notice followed by a written incident investigation report shall be submitted to Authority's Project Manager within 24 hours of the incident.
- C. A final written incident investigative report shall be submitted within seven (7) calendar days and include the following information. The Current Status of anyone injured, photos of the incident area, detailed description of what happened, Investigative photos of the existing conditions and area around the injury/incident scene, the contributing factors that lead to the incident occurrence, a copy of the company policy or procedure associated with the incident and evaluation of effectiveness, copy of task planning documentation, copy of the Physician's first report of injury, copy of Cal/OSHA 300 log of work related injuries and illnesses, the Cal/OSHA 301 Injury Illness Incident Report, and corrective actions initiated to prevent recurrence. This information shall be considered the minimum elements required for a comprehensive incident report provided to OCTA.
- D. A Serious Injury, Serious Incident, OSHA Recordable Injury/Illness, or a Significant Near Miss shall require a formal incident review at the discretion of the Authority's Project Manager. The incident review shall be conducted within

seven (7) calendar days of the incident. This review shall require a company senior executive, company program or project manager from the Contractors' organization to participate and present the incident review as determined by the OCTA Project Manager. The serious incident presentation shall include action taken for the welfare of the injured, a status report of the injured, causation factors that lead to the incident, a root cause analysis (using 5 whys and fishbone methods), and a detailed recovery plan that identifies corrective actions to prevent a similar incident, and actions to enhance safety awareness.

- 1. <u>Serious Injury:</u> includes an injury or illness to one or more employees, occurring in a place of employment or in connection with any employment, which requires inpatient hospitalization for a period in excess of twenty-four hours for other than medical observation, or in which an employee suffers the loss of any member of the body, or suffers any serious degree of physical disfigurement. A serious injury also includes a lost workday or reassignment or restricted injury case as determined by the Physician's first report of injury or Cal/OSHA definitions.
- 2. <u>Serious Incident:</u> includes but not limited to property damage of \$500.00 or more, an incident requiring emergency services (local fire, paramedics and ambulance response), news media or OCTA media relations response, and/or incidents involving other agencies (Cal/OSHA, EPA, AQMD, DTSC, Metrolink, FTA, FRA etc.) notification or representation.
- 3. <u>OSHA Recordable Injury / Illness:</u> includes and injury / illness resulting in medical treatment beyond First Aid, an injury / illness which requires restricted duty, or an injury / illness resulting in days away from work.
- 4. <u>Significant Near Miss Incident;</u> includes incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred.

1.4 PERSONAL PROTECTIVE EQUIPMENT

Contractors, and all associated subcontractors, vendors and suppliers are required to provide their own personal protective equipment (PPE), including eye, head, foot, and hand protection, respirators, reflective safety vests, and all other PPE required to perform their work safely on Authority projects.

1.5 LANGUAGE REQUIREMENTS

The Contractor for safety reasons shall ensure employees that do not read, or understand English, shall have a bilingual supervisor or foreman when on the Authority property or projects.

1.6 WARNING SIGNS AND DEVICES

The Contractor shall provide signs, signals, and/or warning devices to be visible when and where a hazard exists. Signs, signals, and/or warning devices shall be removed when the hazard no longer exists.

1.7 REFERENCES

- A. CCR Title 8 Standards (Cal/OSHA)
- B. FCR Including 1910 and 1926 Standards
- C. NFPA, NEC, ANSI, NIOSH Standards
- D. Construction Industry Institute (CII)
- E. Board of Certified Safety Professionals (BCSP)
- F. OCTA Yard Safety Rules

END OF SECTION

EXHIBIT F: PROPOSAL EXCEPTIONS AND/OR DEVIATIONS

PROPOSAL EXCEPTIONS AND/OR DEVIATIONS

The following form shall be completed for each technical and/or contractual exception or deviation that is submitted by Offeror for review and consideration by Authority. The exception and/or deviation must be clearly stated along with the rationale for requesting the exception and/or deviation. If no technical or contractual exceptions or deviations are submitted as part of the original proposal, Offerors are deemed to have accepted Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C). Offerors will not be allowed to submit this form or any contractual exceptions and/or deviation after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

Offeror:	
RFP No.: RFP	Title:
Deviation or Exception No. :	_
 Check one: Scope of Work (Technical) Proposed Agreement (Contracture) 	ual)
Reference Section/Exhibit:	Page/Article No
Complete Description of Deviation or Ex	xception:
Rationale for Requesting Deviation or E	Exception:
Area Below Reserved for Authority Use Only	y:



Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - October 10, 2022

State Highway Project											
			Fe	deral Fun	ds	9	State Fund	s	l	ocal Fund	s
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 from SR-55 to SR-57, add one HOV lane each direction	Α	\$41,500	\$36,191							\$5,309	
I-5 widening, I-405 to Yale Avenue (Segment 1)	В	\$230,482	\$52,357			\$95,338	\$33,395			\$49,392	
I-5 widening, Yale Avenue to SR-55 (Segment 2)	В	\$41,351	\$32,527							\$8,824	
I-5 widening, Alicia Parkway to El Toro Road (Segment 3)	С	\$181,327	\$49,897		\$4,728		\$9,388			\$117,314	
I-5 widening, Oso Parkway to Alicia Parkway (Segment 2)	С	\$206,695	\$48,676		\$7,921					\$150,098	
I-5 widening, SR-73 to Oso Parkway (Segment 1)	C	\$213,267	\$28,167		\$6,433	\$91,977		\$29,832		\$56,858	
I-5, SR-73 to El Toro Road landscaping/replacement planting ¹	C	\$12,335	\$790			\$6,000				\$5,545	
I-5/EI Toro Interchange	D	\$9,713	\$9,213							\$500	
SR-55 (I-5 to SR-91)	F	\$16,000	\$8,359		\$2,641					\$5,000	
SR-55 widening between I-405 and I-5	F	\$505,720	\$160,500		\$41,900	\$80,000	\$140,000			\$83,320	
SR-57 Orangewood Avenue to Katella Avenue	G	\$9,327	\$2,500		\$3,240					\$3,587	
SR-57 truck climbing lane phase II: Lambert Road to LA County Line	G	\$6,500				\$6,500					
SR-91, Acacia Avenue to La Palma Avenue (Segment 3)	I	\$18,171	\$1,770							\$30	\$16,371
SR-91, La Palma Avenue to SR-55 (Segment 2)	I	\$46,314	\$3,460							\$40	\$42,814
SR-91, SR-55 to Lakeview Avenue (Segment 1)	I	\$15,779	\$1,770							\$30	\$13,979
SR-91, SR-57 to SR-55 (Segment 1,2 and 3) Outreach ²	I	\$2,000									\$2,000
SR-91, SR-241 to I-15	J	\$41,800									\$41,800
I-405 improvements, SR-73 to I-605	К	\$2,080,234	\$35,000		\$10,648			\$89,771		\$1,315,885	\$628,930
I-405 (I-5 to SR-55)	L	\$8,000	\$8,000								
I-605/ Katella Avenue interchange	М	\$32,144	\$17,800							\$14,344	
241/91 Express Lanes (HOT) connector		\$182,298	\$50								\$182,248
I-405 s/b aux lane - University Drive to Sand Canyon and Sand Canyon to SR-133		\$2,328				\$2,328					
I-5 Managed Lane Project from Avenida Pico to San Diego County Line		\$6,978	\$6,978								
SR-74 - Gap closure for 0.9 mile and multimodal improvements		\$53,513			\$250	\$43,913				\$7,200	\$2,150
SR-74 widening, City/County line to Antonio Parkway		\$40,905	\$5,285			\$10,000					\$25,620
State Highway Project Totals		\$4,004,681	\$509,290		\$77,761	\$336,056	\$182,783	\$119,603		\$1,823,276	\$955,912
Federal Funding Total \$587,051								I			
State Funding Total \$638,442											
Local Funding Total \$2,779,188											
Total Funding (000's) \$4,004,681											

State Highway Project Completed											
Federal Funds State Funds Local Funds									s		
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 HOV lane each direction s/o PCH to San Juan Creek Road	C	\$74,300	\$11,326					\$20,789		\$42,185	
I-5 HOV lanes from s/o Avenida Vista Hermosa to s/o PCH	C	\$75,300	\$12,065			\$46,779				\$16,456	



Pending Approval by Board - October 10, 2022

State Highway Project Completed											
			Federal Funds		State Funds			Local Funds			
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
I-5 HOV lanes: s/o Avenida Pico to s/o Vista Hermosa	С	\$83,500	\$26,867		\$1,600	\$43,735				\$11,298	
I-5/SR-74 interchange improvements	D	\$80,300				\$48,683		\$24,109	\$2,500		\$5,008
I-5/SR-74 interchange landscaping/replacement planting	D	\$1,440			\$752	\$688					
SR- 57 n/b widening, Katella Avenue to Lincoln Avenue - landscaping	G	\$2,172								\$2,172	
SR- 57 n/b widening, SR-91 to Yorba Linda Boulevard - landscaping	G	\$946								\$946	
SR-57 n/b widening, Katella Avenue to Lincoln Avenue	G	\$35,827						\$24,127		\$11,700	
SR-57 n/b widening, SR-91 to Yorba Linda Boulevard	G	\$51,354						\$39,475		\$11,879	
SR-57 n/b widening, Yorba Linda to Lambert Road	G	\$52,871						\$41,250		\$11,621	
SR-57 n/b widening, Yorba Linda to Lambert Road - landscaping	G	\$1,193								\$1,193	
SR-91 w/b connect existing aux lanes, I-5 to SR-57	Н	\$62,977						\$27,227		\$35,750	
SR-91 w/b connecting existing aux lanes, I-5 to SR-57 - landscaping	Н	\$2,290								\$2,290	
SR-91 w/b (SR-55 - Tustin interchange) improvements	I	\$43,753				\$15,753		\$14,000		\$14,000	
SR-91 e/b widening, SR-241 to SR-71	J	\$57,773			\$45,911					\$6,942	\$4,920
SR-91 w/b routes 91/55 - e/o Weir Canyon Road replacement planting	J	\$2,898				\$2,898					
SR-91 widening, SR-55 to Gypsum Canyon (Weir Canyon Road/SR-241)	J	\$76,993				\$22,250		\$54,045		\$698	
I-405/SR-22/I-605 HOV connector - landscaping		\$4,600	\$4,600								
HOV connectors from I-405 and I-605	M1	\$173,091	\$14,787					\$135,430	\$16,200		\$6,674
HOV connectors from SR-22 to I-405	M1	\$115,878	\$64,375		\$49,625				\$1,878		
State Highway Project Completed Totals		\$999,456	\$134,020		\$97,888	\$180,786		\$380,452	\$20,578	\$169,130	\$16,602
Federal Funding Total \$231,908											

Federal Funding Total	\$231,908
State Funding Total	\$561,238
Local Funding Total	\$206,310
Total Funding (000's)	\$999,456



Capital Funding Program Report

Pending Approval by Board - October 10, 2022

Board Actions:

Cooperative Agreement with the California Department of Transportation for the Interstate 5 Plant Establishment Project Between State Route 73 and El Toro Road item:

1. Authorize the use of up to \$0.79 million in Surface Transportation Block Grant funds for design services for the Interstate 5 Plant Establishment Project Between State Route 73 and El Toro Road in lieu of Measure M2 funding.

Approval to Release Request for Proposals for Public Outreach for the State Route 91 Improvement Project item:

2. Authorize the use of up to \$2.00 million in 91 Express Lane funds for outreach efforts for all three segments of the State Route 91 Improvement Project from State Route 57 to State Route 55.

Acronyms:

Aux - Auxilliary CMAQ - Congestion Mitigation Air Quality Improvement Program E/B - Eastbound E/O - East of FTA - Federal Transit Administration HOT - High-Occupancy Toll HOV - High-Occupancy Vehicle I-405 - Interstate 405 I-5 - Interstate 5 I-605 - Interstate 605 LA - Los Angeles M Code - Project Codes in Measure M1 and M2 M1 - Measure M1 M2 - Measure M2 N/B - Northbound OC - Orange County OCTA - Orange County Transportation Authority PCH - Pacific Coast Highway **RSTP** - Regional Surface Transportation Program S/B - Southbound S/O - South of SB 1 - Senate Bill 1 (Chapter 5, Statutes of 2017) SR-133 - State Route 133 SR-22 - State Route 22 SR-241 - State Route 241 SR-55 - State Route 55 SR-57 - State Route 57 SR-71 - State Route 71 SR-73 - State Route 73 SR-74 - State Route 74 SR-91 - State Route 91 STBG - Surface Transportation Block Grant STIP - State Transportation Improvement Program W/B - Westbound



COMMITTEE TRANSMITTAL

October 10, 2022

From: Andrea West, Interim Clerk of the Board

Subject: Measure M2 Streets and Roads Program Milestone

Executive Committee Meeting of October 3, 2022

Present: Chairman Murphy, Vice Chairman Hernandez, Directors Bartlett, Do, Hennessey, and Muller Absent: Director Jones

Committee Vote

No action was taken on this item.

Staff Recommendation

Receive and file as an information item.



October 3, 2022

Jane Offic

From: Darrell E. Johnson, Chief Executive Officer

Subject: Measure M2 Streets and Roads Program Milestone

Overview

Approximately one-third (32 percent) of the voter-approved Measure M2 local transportation sales tax revenue is dedicated to maintaining streets, synchronizing traffic signals, and improving local streets and roads to deliver a safer, more efficient roadway network. In September 2022, the Measure M2 Streets and Roads program surpassed \$1 billion in funding allocations and distributions. This report commemorates this achievement and highlights the related accomplishments and benefits.

Recommendation

Receive and file as an information item.

Background

On November 7, 2006, Orange County voters, by nearly 70 percent, approved the Renewed Measure M Transportation Investment Plan (Plan) for the Measure M2 (M2) one half-cent sales tax for transportation improvements. The Plan provides a 30-year local revenue stream for a broad range of environmental initiatives. transportation and In accordance with Ordinance No. 3 (M2 Ordinance), the Orange County Transportation Authority (OCTA) directs approximately one-third (32 percent) of net local transportation sales tax proceeds to enable local jurisdictions to maintain streets, synchronize traffic signals, and improve the local streets and roads system to make it safer and more efficient. Orange County's network of local streets and roads is a critical component of connecting our communities to employment, social and health services, educational opportunities, and recreational activities; it is essential to maintain, enhance, and improve this system to sustain present and future quality of life.

Since 2011, OCTA has administered M2 funds through three streets and roads programs.

Local Fair Share (LFS)

The LFS is a formula-based program that provides flexible funding directly to local jurisdictions as gap funding needed for maintaining and repairing the aging street system as well as supporting local transportation priorities. The program is intended to augment, rather than replace, existing transportation expenditures. The M2 Ordinance specifies that 18 percent of net M2 revenues be allocated for this purpose. Funds are distributed via formula on a bimonthly basis based on population, street mileage, and the amount of sales tax collected in each jurisdiction.

Regional Capacity Program (RCP)

The RCP provides funding opportunities for improvements to the Master Plan of Arterial Highways, which is the backbone of Orange County's arterial street network. The program consists of three individual program categories: arterial capacity enhancements (ACE), intersection capacity enhancements (ICE), and freeway arterial/streets transitions (FAST). The M2 Ordinance specifies that ten percent of net M2 revenues are to be allocated for the RCP, through a competitive process to ensure critical project needs are addressed.

Regional Traffic Signal Synchronization Program (RTSSP)

The RTSSP provides funding opportunities and assistance to implement multi-agency synchronization projects that improve traffic flow by coordinating traffic lights across jurisdictional boundaries and maintaining coordination through freeway interchanges, where possible. The M2 Ordinance set the target of the program to regularly coordinate 2,000 signals along 750 miles of roadway. It also specifies that four percent of net M2 revenues to be allocated for RTSSP, under a competitive program which OCTA makes available through annual calls for projects (call).

In September 2022, these programs collectively surpassed \$1 billion of M2 funding investments and commitments through annual competitive grants and flexible formula funding to local jurisdictions. This funding helped improve the Orange County's streets and roads network, as well as support local transportation priorities.

Discussion

The Plan was developed in anticipation of Orange County's needs over 30 years. Continued investments in the transportation system are necessary to manage traffic congestion, strengthen the local economy, and improve quality of life. Regardless of the mode of transportation (by foot, bicycle, bus, rail, truck, automobile, etc.), nearly every trip is connected to the street network, emphasizing the need to maintain Orange County's local streets and roads network.

Since 2011, Orange County's population has grown by over four percent to nearly 3.2 million residents; jobs have increased by 14 percent; housing has increased by approximately six percent; and travel on arterials and local roads has seen an increase of over six percent, yet the performance of the transportation system has remained at or above normal service levels. The M2 Streets and Roads program has provided a reliable source of funding to sustain Orange County's streets and roads through LFS, RCP, and RTSSP. Status of the three programs is provided below. Details on the \$1 billion breakdown of allocations and distributions for each program are included in Attachment A.

LFS

As of September 2022, OCTA has provided \$598 million of M2 funds directly to local jurisdictions through LFS. Staff's analysis of local jurisdictions' annual expenditure reports submitted to OCTA from fiscal year (FY) 2010-11 through FY 2020-21 reflects that over 85 percent of funds have been expended on maintenance of streets and roads. The remainder is comprised of new construction, right-of-way, administration, and other transportation priorities.

RCP

Through 12 calls to date, OCTA has allocated \$283.4 million of M2 revenues for 191 RCP project phases (includes planning, environmental and engineering, right-of-way, and construction) for the ACE, ICE, and FAST categories. In the three most recent calls, 92 percent of project applications submitted received funding. RCP funding guidelines are regularly revisited in coordination with local jurisdiction representatives to align with current project needs. In addition, the project selection process relies on an open evaluation process based on objective criteria such as traffic and congestion levels, cost effectiveness, and project readiness, to ensure transparency and effectiveness. More importantly, 140 of the 191 project phases allocated are open to traffic, demonstrating the strong partnership between OCTA and local jurisdictions to ensure timely implementation for the public's benefit.

RTSSP

Through 12 calls to date, OCTA has allocated \$119.6 million of M2 revenues for 109 synchronization projects. In the three most recent calls, 79 percent of project applications submitted received funding. RTSSP funding guidelines are also updated on a periodic basis in coordination with local jurisdictions. Modifications to the project selection criteria considers transportation significance, cost effectiveness, number of participating jurisdictions, and project readiness. Of the 109 projects funded under this program, 81 have been completed. This has resulted in traffic lights being synchronized at over 2,300 intersections along more than 621 miles of streets. The completed projects have improved travel times by 12 percent, reduced delays and congestion by 13 percent in increased average speed and increased the number of successive green lights drivers experience in their daily commutes with a reduction of 27 percent in stops.

Through LFS, RCP, and RTSSP, local jurisdictions have also been able to use M2 funds to repair sidewalks, enhance crosswalks, and add bicycle lanes as part of their awarded streets and roads projects. In addition, as appropriate, the local agencies have been able to upgrade pedestrian amenities with Americans with Disabilities Act features such as curb ramps and audible or visual signals, and other signage and flashing beacons to better connect the community and make every trip, regardless of mode, safer and more accessible.

Safeguards

M2 funds are intended to augment, rather than replace, existing transportation expenditures. The M2 Ordinance includes many taxpayer safeguards to ensure that revenues are spent accordingly, and programs are carried out as promised to voters. One of the most important safeguards is the M2 Taxpayer Oversight Committee (TOC), an 11-member independent body formed to monitor OCTA's use of M2 funds, approve changes to the Plan, and hold annual public hearings on expenditures. In addition, with the support of the TOC Annual Eligibility Review Subcommittee, the OCTA Board of Directors determines annually whether local jurisdictions remain eligible to receive M2 net revenue. Details about these requirements are included in Attachment B.

Additional Investments

The \$1 billion of M2 investment does not include supplemental and leveraged external funding, the OC Bridges program (Attachment C), or local jurisdictions' matching funds. OCTA remains diligent in tracking and applying for external funding opportunities to expedite local improvements and ensure the availability of M2 funds for future projects. Since 2011, OCTA has also leveraged over \$103.2 million in state and federal funding to expedite and extend the reach of improvements on the local streets and roads network.

OCTA also successfully leveraged significant funding for the OC Bridges program. Included in the M2 Ordinance for the RCP is an element for construction of railroad over- or underpass grade separations where high-volume freight trains streets are impacted by along the BNSF Railway in northern Orange County. The OC Bridges program grade separated seven streets and rail crossings in the cities of Anaheim, Fullerton, and Placentia. The new crossings have all been opened to traffic since 2017. M2 provided \$152.6 million, a portion of the \$666.5 million total program, leveraging the majority of the funds (\$513.9 million) from local, state, and federal sources.

Local Streets and Roads Investments	Funding (in millions)
LFS	\$ 598.0
RCP	\$ 283.4
RTSSP	\$ 119.6
Subtotal for M2 Streets and Roads	
Programs	\$1,001.0
OC Bridges Program – M2 Funds	\$ 152.6
External Funding	
Streets and Roads Projects	\$ 103.2
OC Bridges Program	\$ 513.9
Total Investments	\$1,770.7

A table summarizing local streets and roads investments is shown below.

Summary

M2 dedicates approximately one-third (32 percent) of net local transportation sales tax proceeds to enable Orange County cities and the County of Orange to maintain streets, synchronize traffic signals, and improve the local streets and roads system to make it safer and more efficient. This element of M2 provides a balanced approach to streets and roads improvements by encouraging cooperative and collaborative regional planning while also allowing flexibility. As Orange County has grown over the years, local streets and roads have been able to accommodate more throughput, generally improve level of service, and also maintain the standing of having best pavement conditions in the state with an average weighted pavement condition index score of 79; where the average for the state is 66. Additionally, OCTA's diligence in seeking and leveraging external funding has helped extend the reach of these investments.

Measure M2 Streets and Roads Program Milestone

In partnership with the 35 local jurisdictions, a significant milestone in the M2 Streets and Roads program was reached as funding allocation and distributions surpassed \$1 billion. M2 will continue to be a reliable revenue source through 2041 that maintains funding control at the local level. This allows for investments to be tailored to reflect the varied interests and priorities inherent in the diverse communities of Orange County – maintaining quality of life and keeping us moving.

Attachments

- A. Breakdown of \$1 Billion Streets and Roads Program Milestone
- B. Measure M2 Eligibility Requirements Excerpt
- C. External Funding for Streets and Roads Improvements

Prepared by:

ancarcal

Francesca Ching Section Manager, Measure M2 Program Management Office (714) 560-5625

Approved by:

Kia Mortazavi Executive Director, Planning (714) 560-5741

ATTACHMENT A

Breakdown of \$1 Billion Streets and Roads Program Milestone

Local Jurisdiction	Project Name	Program	Phase	Μ	2 Allocation
Anaheim	Brookhurst St Widening (Ball Rd to Katella Ave)	ACE	С	\$	2,963,135
Anaheim	Brookhurst St Widening (I-5 to SR-91)	ACE	Е	\$	981,907
Anaheim	Euclid St Widening (Crescent Ave to Westmont Dr)	ACE		\$	852,500
Anaheim	Katella Ave (Manchester Ave to Anaheim Way)	FAST		\$	1,699,910
Anaheim	Ball Road and Anaheim Boulevard Intersection	ICE	Е	\$	334,750
Anaheim	Ball Road and Sunkist Street Intersection	ICE	Е	\$	383,547
Anaheim	Knott St and Lincoln Ave Intersection	ICE		\$	88,423
Anaheim	State College Boulevard and La Palma Avenue Intersection	ICE	Е	\$	301,477
Anaheim	Tustin Ave/La Palma Ave Intersection Widening	ICE	С	\$	1,689,000
Anaheim	Brookhurst Street Widening (Interstate 5 to State Route 91)	ACE	R	\$	10,563,632
Anaheim	Brookhurst Street Widening (Interstate 5 to State Route 91)	ACE	С	\$	4,754,131
Anaheim	State College Boulevard and La Palma Avenue Intersection	ICE	R	\$	345,666
Anaheim	Ball Road and Anaheim Boulevard Intersection	ICE	R	\$	441,780
Anaheim	Ball Road and Sunkist Street Intersection	ICE	R	\$	727,921
Anaheim	Lincoln Avenue from Harbor Blvd. to West Street	ACE	Е	\$	590,494
Anaheim	Lincoln Avenue Widening (East Street to Evergreen Street)	ACE	E	\$	762,904
Anaheim	State College Boulevard and La Palma Avenue Intersection	ICE	С	\$	2,189,239
Anaheim	Ball Road and Sunkist Street Intersection	ICE	С	\$	2,556,802
Anaheim	Ball Road and Anaheim Boulevard Intersection	ICE	С	\$	3,613,005
Anaheim	Lincoln Avenue from East Street to Evergreen Street	ACE	R	\$	1,147,669
Anaheim	Lincoln Widening Avenue (East Street to Evergreen Street)	ACE	С	\$	5,341,867
Anaheim	Lincoln Avenue and Harbor Boulevard Intersection Improvements	ICE	E	\$	78,750
Brea	SR-57 & Lambert Road Interchange Improvements Project	FAST	Е	\$	927,000
Brea	SR-57 & Lambert Road Interchange Improvements Project	FAST	R	\$	5,212,800
Brea	SR-57 & Lambert Road Interchange Improvements	FAST	С	\$	13,114,578
Brea	SR-90 at SR-57 Southbound On-Ramp Project	FAST	E	\$	476,150
Buena Park	SR-91/Beach Blvd WB Ramp	FAST	Е	\$	308,000
Buena Park	SR-91/Beach Blvd Westbound Ramp Widening	FAST		\$	1,474,370
Costa Mesa	Harbor Boulevard Widening (South Coast Drive to Sunflower Avenue)	ACE		\$	1,019,737
Costa Mesa	Baker St/Bear St	ICE	С	\$	181,500
Costa Mesa	Bristol St/Baker St	ICE	Е	\$	66,260
Costa Mesa	Fairview Rd/Wilson St Intersection Widening	ICE	E	\$	92,429
Costa Mesa	Harbor Blvd/Gisler Ave Intersection Widening	ICE	E	\$	85,027
Costa Mesa	Harbor Blvd/Victoria St Intersection Widening	ICE	E	\$	48,750
Costa Mesa	Harbor Blvd/Wilson St Intersection Widening	ICE	С	\$	260,357
Costa Mesa	Harbor Blvd/Adams Ave	ICE		\$	1,687,168
Costa Mesa	West 17th Street Widening Project	ACE	E	\$	176,820
Costa Mesa	Harbor Boulevard at Gisler Avenue Intersection Improvement	ICE	С	\$	489,808
Costa Mesa	Hyland Avenue at MacArthur Boulevard Intersection Improvements	ICE	E	\$	37,500
Costa Mesa	Newport Boulevard Widening from 19th St to Superior Ave	ACE	Е	\$	281,250
Costa Mesa	Hyland Avenue at MacArthur Boulevard Intersection Improvements	ICE		\$	251,735

Local Jurisdiction	Project Name	Program	Phase	M2 Allocation
County of Orange	Cow Camp Rd (Antonio Pkwy to I St, Segment 1)	ACE		\$ 5,031,176
County of Orange	Edinger Ave Bridge Widening at Santa Ana River	ACE	E	\$ 548,731
County of Orange	La Pata Ave Ext (Ortega Hwy/Calle Saluda/Del Rio)	ACE	E	\$ 2,250,000
County of Orange	La Pata Ave Phase I (Prima Deshecha Landfill to Calle Saluda)	ACE		\$ 5,110,000
County of Orange	La Pata Ave Phase II (Ortega Hwy/Prima Deshecha Landfill)	ACE	С	\$ 8,550,866
County of Orange	Brea Boulevard and Brea Canyon Road Widening Improvements	ACE	E	\$ 2,308,500
County of Orange	Cow Camp Road - Segment 2 (Engineering Phase)	ACE	E	\$ 2,750,000
County of Orange	Oso/Antonio Parkway Intersection Improvements	ICE	С	\$ 792,669
County of Orange	Ortega Highway Widening Improvements (PA&ED Phase)	ACE	E	\$ 1,950,000
County of Orange	Cow Camp Road Segment 2A & 2B Construction	ACE	С	\$ 14,778,770
County of Orange	Los Patrones Parkway Extension	ACE	E	\$ 1,875,000
Cypress	Cerritos Ave (East) Widening at Walker St	ACE	E	\$ 27,398
Fullerton	Bastanchury Rd (Harbor Blvd to Fairway Isles Dr)	ACE		\$ 376,300
Fullerton	Chapman Ave at SR-57 Interchange	ACE	С	\$ 151,073
Garden Grove	Euclid Street and Westminster Avenue Intersection Improvement	ICE	R	\$ 517,646
Garden Grove	Euclid-Westminster Intersection Improvement Project - Construction Phase	ICE	С	\$ 1,022,531
Garden Grove	Harbor-Garden Grove Intersection Improvement Project - Engineering Phase	ICE	E	\$ 97,500
Huntington Beach	Beach Blvd/Warner Ave	ICE	E	\$ 53,951
Huntington Beach	Brookhurst St/Adams Ave Intersection Widening	ICE	E	\$ 176,345
Huntington Beach	Beach Blvd 4th NB Thru Lane	ACE		\$ 266,906
Huntington Beach	Atlanta Avenue Widening	ACE	С	\$ 1,200,000
Irvine	Culver Dr (Scottsdale to I-5)	ACE		\$ 811,703
Irvine	Jamboree Rd/I-405 SB Ramp Interchange	FAST	E	\$ 64,340
Irvine	Jamboree Rd/Barranca Pkwy Intersection Widening	ICE	E	\$ 46,206
Irvine	Jamboree Rd/Main St	ICE	E	\$ 87,057
Irvine	University Dr Widening (MacArthur Blvd to Campus Dr)	ACE	E	\$ 910,000
Irvine	University Dr/Ridgeline Dr/Rosa Drew Ln	ICE	E	\$ 321,960
Irvine	University Drive (MacArthur to Campus) Widening	ACE	R	\$ 147,640
Irvine	University Drive Widening (MacArthur to Campus)	ACE	С	\$ 4,016,606
Irvine	Jamboree Road Widening (600 feet north of Main to Barranca)	ACE	E	\$ 361,771
Irvine	University Dr/Ridgeline Dr/Rosa Drew Ln Intersection Improvements	ICE	R	\$ 9,165
Irvine	University/Ridgeline Intersection Improvement	ICE	С	\$ 1,724,024
Irvine	University Drive Widening from Ridgeline Drive to Interstate-405	ACE	E	\$ 327,262
Irvine	Harvard Avenue at Michelson Drive Intersection Improvements	ICE	E	\$ 54,420
Irvine	Culver Drive at Alton Parkway Intersection Improvements	ICE	E	\$ 194,047
Irvine	University Drive Widening from Ridgeline Drive to Interstate 405	ACE	С	\$ 1,833,901
Irvine	Jeffrey Road at Barranca Parkway Intersection Improvements	ICE	E	\$ 187,500
Irvine	Culver Drive at Alton Parkway Intersection Improvements	ICE	С	\$ 2,236,846
Irvine	Harvard Avenue at Michelson Drive Intersection Improvements	ICE	С	\$ 306,311

Local Jurisdiction	Project Name	Program	Phase	M2	Allocation
La Habra	Whittier Blvd. and Hacienda Rd. Intersection Improvements	ICE	E	\$	172,777
La Habra	Whittier Blvd and Beach Blvd Intersection Improvements	ICE	С	\$	1,106,563
La Habra	Harbor Blvd at Lambert Rd Intersection Improvement	ICE	С	\$	573,028
La Habra	Whittier Blvd. and Hacienda Rd. Intersection Improvements	ICE	R	\$	624,067
La Habra	Whittier Blvd and Hacienda Rd Intersection Improvements	ICE	С	\$	1,230,548
La Palma	La Palma Ave / Del Amo Blvd over Coyote Creek Bridge Replacement Project	ACE		\$	975,000
Laguna Beach	South Coast Hwy/Broadway (SR-1/SR-133)	ICE	E	\$	47,300
Laguna Hills	Paseo De Valencia (Kennington Dr to Laguna Hills Dr)	ACE	E	\$	266,873
Laguna Niguel	Crown Valley Pkwy Widening (Cabot Rd to Forbes Rd)	ACE	С	\$	1,278,907
Laguna Niguel	Crown Valley Parkway Westbound Widening I-5 to Oso Creek Project	ACE	E	\$	922,000
Lake Forest	Rancho Parkway - Hermana Cr to Portola Pkwy	ACE	С	\$	1,231,444
Lake Forest	Portola Parkway Widening Improvements	ACE	С	\$	179,276
Mission Viejo	La Paz Bridge/Rd Widening (Muirlands Blvd to Chrisanta Dr)	ACE	R	\$	193,446
Mission Viejo	Oso Pkwy (I-5 to Country Club Dr)	ACE	С	\$	2,655,618
Mission Viejo	Alicia Parkway and Marguerite Parkway Intersection Capacity Enhancement	ICE		\$	271,989
Mission Viejo	Marguerite Parkway and Santa Margarita Parkway	ICE		\$	143,298
Mission Viejo	Los Alisos Boulevard and Santa Margarita Parkway	ICE		\$	205,559
Mission Viejo	La Paz Bridge and Road Widening from Muirlands to Chrisanta	ACE	С	\$	3,300,843
Mission Viejo	Marguerite Parkway & Jeronimo Road Intersection Capacity Enhancement Project	ICE		\$	481,749
Newport Beach	Newport Blvd Widening (Via Lido to 30th St)	ACE	E	\$	225,000
Newport Beach	West Coast Hwy Widening (Hoag Dr to Riverside Ave)	ACE	E	\$	270,000
Newport Beach	Newport Blvd Widening (Via Lido to 30th St)	ACE	R	\$	3,048,413
Newport Beach	Newport Blvd Widening (Via Lido to 30th St)	ACE	С	\$	1,194,000
Newport Beach	West Coast Highway and Superior Avenue/Balboa Boulevard Intersection Improvements (Phase 2)	ICE	E	\$	780,000
Orange	Meats Ave at SR-55 Interchange	FAST	E	\$	728,722
Orange	Katella Ave/Wanda St Intersection Widening	ICE	E	\$	37,809
Orange	Lincoln Ave/Tustin St Intersection Widening	ICE	E	\$	80,714
Orange	Lincoln Avenue and Tustin Street Intersection Widening	ICE		\$	389,692
Orange	Katella Avenue and Wanda Road intersection widening	ICE		\$	703,680
Orange	Tustin Street and Chapman Avenue Intersection Widening	ICE		\$	243,750
Orange	Tustin Street and Katella Avenue Critical Intersection Widening	ICE	E	\$	56,114
Orange	Tustin/Meats Intersection Right Turn Lane Addition	ICE	E	\$	85,757
Orange	Tustin/Meats Intersection Right Turn Lane Addition	ICE	R	\$	1,206,634
Orange	Tustin/Meats Intersection Right Turn Lane Addition	ICE	С	\$	719,625
Orange	Tustin Street and Chapman Avenue Intersection Widening	ICE	С	\$	375,000
Orange	Cannon Street at Serrano Avenue Intersection Widening	ICE	E	\$	108,750
Orange	Cannon Street Widening - Santiago Canyon Road to Serrano Avenue	ACE	E	\$	618,750
Orange	Cannon Street at Serrano Avenue Intersection Widening	ICE	С	\$	631,814
San Juan Capistrano	Del Obispo Street Widening	ACE		\$	865,930
San Juan Capistrano	Ortega Highway Widening Improvements Project (PS&E Phase)	ACE	E	\$	5,250,000

Local Jurisdiction	Project Name	Program	Phase	Μ	2 Allocation
Santa Ana	Bristol St (Washington Ave to 17th St)	ACE	E	\$	119,208
Santa Ana	Grand Ave Widening (1st St to 4th St)	ACE	С	\$	1,040,000
Santa Ana	Bristol St (3rd St to Civic Center Dr)	ACE		\$	1,873,587
Santa Ana	Bristol St Widening (Washington Ave to 17th St)	ACE		\$	13,769,007
Santa Ana	Grand Ave Widening (4th St to 17th St)	ACE	E	\$	244,141
Santa Ana	Warner Avenue Widening (Main Street to Oak Street)	ACE	E	\$	323,775
Santa Ana	Bristol Street Widening - Civic Center Drive to Washington Avenue	ACE	R	\$	6,656,000
Santa Ana	Bristol Street Widening - Warner Avenue to St. Andrew Place	ACE	R	\$	9,468,000
Santa Ana	Fairview Street Street Widening	ACE	E	\$	185,100
Santa Ana	Warner Ave Improvements and Widening (Main St to Oak St)	ACE	R	\$	5,200,000
Santa Ana	Bristol Street and Memory Lane Intersection Widening	ICE	E	\$	67,500
Santa Ana	Warner Avenue and Flower Street Intersection Improvements	ICE	E	\$	6,737
Santa Ana	Warner Avenue Improvements - Oak Street to Grand Avenue	ACE	E	\$	811,125
Santa Ana	Warner Avenue Improvements from Main St to Orange Avenue	ACE	R	\$	8,586,900
Santa Ana	Bristol Street and Memory Lane Intersection Improvements	ICE	R	\$	1,167,244
Santa Ana	Warner Avenue and Flower Street Intersection Improvements	ICE	С	\$	59,524
Santa Ana	Warner Avenue Improvements - (Standard Avenue to Grand Avenue)	ACE	R	\$	3,066,000
Santa Ana	Warner Avenue Improvements from Main St to Oak Street	ACE	С	\$	4,629,750
Santa Ana	Warner Avenue Improvements - (Oak Street to Standard Avenue)	ACE	R	\$	7,494,000
Santa Ana	Bristol Street Improvements Phase 3A - Civic Center Drive to Washington Avenue	ACE	С	\$	3,273,573
Santa Ana	Bristol Street Improvements Phase 4 - Warner Avenue to St. Andrew Place	ACE	С	\$	7,501,206
Santa Ana	Fairview Street Improvements from 9th St. to 16th St.	ACE		\$	5,658,840
Santa Ana	Warner Avenue Improvements- (Oak Street to Grand Avenue)	ACE	С	\$	9,076,305
Santa Ana	Bristol St. and Memory Ln. Intersection Improvements	ICE	С	\$	1,012,500
Santa Ana	Fairview St. Improvements (Monte Carlo Drive to Trask Street)	ACE	E	\$	825,000
Tustin	Tustin Ranch Rd Ext (Walnut Ave to Warner Ave)	ACE	С	\$	4,510,035
Tustin	Warner Ave Extension (Red Hill Ave to Tustin Ranch Rd)	ACE	С	\$	5,400,000
Tustin	Red Hill Ave Widening and Raised Median Construction (Dyer Rd/Barranca Pkwy to Edinger Ave)	ACE	С	\$	6,000,000
Tustin	El Camino Real/Jamboree Rd Modification	ICE		\$	71,093
Westminster	Bolsa Chica Rd (Duncannon Ave to Old Bolsa Chica Rd)	ACE		\$	708,028
Westminster	Magnolia Avenue and Bolsa Avenue Intersection Capacity Enhancements	ICE		\$	898,799
Yorba Linda	Bastanchury Rd (Lakeview Ave to Eureka Ave)	ACE		\$	2,165,700
Yorba Linda	Bastanchury Rd Improvements (Prospect Ave to Imperial Hwy)	ACE	С	\$	382,676
Yorba Linda	Yorba Linda Boulevard Widening	ACE	E	\$	375,000
Yorba Linda	Bastanchury Road Improvements	ACE	С	\$	2,651,605
Yorba Linda	Yorba Linda Boulevard Widening	ACE	E	\$	1,636,500
Yorba Linda	Lakeview Avenue Widening from Bastanchury Road to Oriente Drive	ACE	С	\$	479,462
Yorba Linda	Yorba Linda Boulevard Widening Project Between Imperial Highway and Lakeview Avenue	ICE	E	\$	229,378
Yorba Linda	Savi Ranch Parkway Widening	ICE	E	\$	227,624

TOTAL \$ 283,407,231

City	Project Name	Program	Phase	M2 Allocation
Aliso Viejo	Pacific Park/Oso Pkwy Signal Sync (Aliso Viejo Pkwy to SR-241)/LHLL	RTSSP*		\$ 137,262
Aliso Viejo	La Paz Rd Signal Sync (Olympiad Rd to Crown Valley Pkwy)	RTSSP*		\$ 42,665
Aliso Viejo	Alicia Parkway Traffic Signal Synchronization Project	RTSSP*		\$ 138,540
Aliso Viejo	Los Alisos Boulevard Route Project	RTSSP*		\$ 51,410
Aliso Viejo	Aliso Creek Road TSSP	RTSSP*		\$ 895,287
Anaheim	Lincoln Avenue Signal Synchronization (Knott Avenue to Imperial Highway)	RTSSP		\$ 581,650
Anaheim	Tustin Ave/Rose Dr Signal Sync (1st St to Yorba Linda Blvd)/SNTA	RTSSP*		\$ 111,219
Anaheim	Ball Rd Signal Sync (Holder St to Tustin St)/ANAH	RTSSP*		\$ 594,067
Anaheim	Harbor Blvd Signal Sync (Romneya Dr to Shopping Ctr)	RTSSP		\$ 731,867
Anaheim	Kraemer Boulevard Signal Synchronization	RTSSP*		\$ 316,358
Anaheim	State College Boulevard Signal Synchronization (Via Burton to Garden Grove Boulevard)	RTSSP*		\$ 541,518
Anaheim	Anaheim Boulevard Traffic Signal Synchronization	RTSSP		\$ 787,940
Anaheim	Orangewood Avenue Signal Synchronization (Harbor Boulevard to Batavia Street)	RTSSP		\$ 683,328
Anaheim	La Palma Avenue Signal Synchronization (Woodland Drive to Chrisden Street)	RTSSP		\$ 2,518,146
Anaheim	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$ 649,077
Anaheim	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 488,105
Anaheim	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 460,967
Brea	Kraemer Boulevard Signal Synchronization	RTSSP*		\$ 243,352
Brea	Birch Street/Rose Drive Corridor Regional Traffic Signal Synchronization	RTSSP		\$ 661,235
Buena Park	Valley View St Signal Sync	RTSSP		\$ 271,019
Buena Park	Knott Ave Signal Sync (Artesia Blvd to Garden Grove Blvd)	RTSSP		\$ 426,388
Buena Park	Ball Rd Signal Sync (Holder St to Tustin St)/ANAH	RTSSP*		\$ 22,002
Buena Park	Artesia Blvd Signal Sync (Valley View Ave to Dale St)	RTSSP		\$ 372,859
Costa Mesa	Fairview Signal Sync (SR-55 to SR-22)	RTSSP		\$ 591,067
Costa Mesa	17th St Signal Sync (Whittier to Dover)	RTSSP	PI	\$ 199,121
Costa Mesa	Baker Placentia Signal Sync (Mesa Verde East to Airway Ave)	RTSSP		\$ 446,046
Costa Mesa	Victoria Signal Sync (Santa Ana River to Irvine Ave)	RTSSP	PI	\$ 190,050
Costa Mesa	Adams Avenue Signal Synchronization (Lake Street to Fairview Road)	RTSSP*		\$ 309,115
Costa Mesa	Newport Boulevard Signal Synchronization (South)	RTSSP*		\$ 913,217
Costa Mesa	Sunflower Avenue Signal Synchronization Project	RTSSP		\$ 485,304
Costa Mesa	Bristol Street Traffic Signal Synchronization Project	RTSSP*		\$ 584,232
Costa Mesa	Fairview Road Signal Synchronization	RTSSP		\$ 1,695,150
Costa Mesa	Bear Street Signal Synchronization	RTSSP		\$ 494,752
Costa Mesa	Baker/Victoria/19th TSSP	RTSSP		\$ 1,772,956

Project P - Regional Traffic Signal Synchronization Program

City	Project Name	Program	Phase	M2 Allocation
County of Orange	Crown Valley Pkwy Signal Sync (PCH to Antonio Pkwy)/MVJO	RTSSP*		\$ 47,73
County of Orange	Pacific Park/Oso Pkwy Signal Sync (Aliso Viejo Pkwy to SR-241)/LHLL	RTSSP*		\$ 107,84
County of Orange	First St/Bolsa Ave Signal Sync (Edwards St to Newport Ave)	RTSSP*		\$ 19,60
County of Orange	Antonio Parkway Signal Synchronization (Ortega Highway to Santa Margarita Parkway)	RTSSP*		\$ 438,49
County of Orange	Newport Avenue and Newport Boulevard Signal Synchronization (North)	RTSSP*		\$ 200,70
County of Orange	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 268,58
County of Orange	El Toro Road Traffic Signal Synchronization Project	RTSSP*		\$ 55,62
County of Orange	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 41,90
County of Orange	Red Hill Avenue Corridor RTSSP	RTSSP*		\$ 239,43
County of Orange	First Street/ Bolsa Avenue Regional Traffic Signal Synchronization	RTSSP*		\$ 140,79
County of Orange	Crown Valley Parkway Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 313,23
Cypress	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 188,57
Dana Point	Crown Valley Pkwy Signal Sync (PCH to Antonio Pkwy)/MVJO	RTSSP*		\$ 22,03
Dana Point	Crown Valley Parkway Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 156,61
Dana Point	Moulton Parkway/Golden Lantern Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 467,93
Fountain Valley	MacArthur Blvd/Talbert Ave Signal Sync (SR-55 to Shopping Ctr)/SNTA	RTSSP*		\$ 105,90
Fountain Valley	Warner Ave Signal Sync (PCH to Red Hill Ave)/FVLY	RTSSP*		\$ 113,04
Fountain Valley	Edinger Ave Signal Sync (Bolsa Chica St to SR-55)	RTSSP*		\$ 99,18
Fountain Valley	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$ 499,29
Fountain Valley	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 325,40
Fullerton	Bastanchury Rd Signal Sync (Malvern Ave to Valley View Ave)	RTSSP		\$ 495,77
Fullerton	Euclid St Signal Sync (La Habra Blvd to Ellis Ave)	RTSSP		\$ 984,87
Fullerton	Brea Boulevard Signal Synchronization	RTSSP		\$ 311,69
Fullerton	Commonwealth Avenue Signal Synchronization	RTSSP		\$ 543,38
Fullerton	Lemon St/Anaheim Blvd Signal Sync (Berkeley Ave to La Palma Ave)	RTSSP		\$ 250,00
Fullerton	Placentia Ave Signal Sync (Bastanchury Rd to State College Blvd)	RTSSP		\$ 335,52
Fullerton	Malvern Avenue/Chapman Avenue Corridor RTSSP	RTSSP		\$ 2,202,30
Fullerton	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$ 299,57
Fullerton	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 379,63
Fullerton	Gilbert Street / Idaho Street Corridor RTSSP	RTSSP		\$ 917,28
Fullerton	Orangethorpe Avenue/Esperanza Road Corridor RTSSP	RTSSP		\$ 3,577,66
Fullerton	Harbor Boulevard Corridor	RTSSP		\$ 2,174,99
Garden Grove	Chapman Avenue Corridor Traffic Signal Synchronization Project	RTSSP*		\$ 1,065,47
Garden Grove	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 402,87
Garden Grove	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$ 748,93
Garden Grove	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 488,10
Garden Grove	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 41,90
Garden Grove	Garden Grove Boulevard TSSP (Valley View St Bristol St.)	RTSSP*		\$ 536,94

Project P - Regional Traffic Signal Synchronization Program

City	Project Name	Program	Phase	Ν	I2 Allocation
Huntington Beach	Goldenwest St Signal Sync (SR-22 to PCH)/HBCH	RTSSP*		\$	190,400
Huntington Beach	MacArthur Blvd/Talbert Ave Signal Sync (SR-55 to Shopping Ctr)/SNTA	RTSSP*		\$	31,380
Huntington Beach	Warner Ave Signal Sync (PCH to Red Hill Ave)/FVLY	RTSSP*		\$	230,084
Huntington Beach	Edinger Ave Signal Sync (Bolsa Chica St to SR-55)	RTSSP*		\$	238,042
Huntington Beach	Adams Avenue Signal Synchronization (Lake Street to Fairview Road)	RTSSP*		\$	444,823
Huntington Beach	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$	499,290
Huntington Beach	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$	488,105
Huntington Beach	BOLSA CHICA STREET TSSP (CHAPMAN AVENUE TO WARNER AVENUE)	RTSSP		\$	1,488,480
Huntington Beach	First Street/ Bolsa Avenue Regional Traffic Signal Synchronization	RTSSP*		\$	281,592
Irvine	Jamboree Rd Signal Sync (Portola Pkwy to MacArthur Blvd)	RTSSP		\$	201,845
Irvine	Culver Dr Signal Sync (Portola Pkwy to Jamboree Rd)	RTSSP		\$	491,851
Irvine	Jeffrey Rd Signal Sync (Portola Pkwy to Jamboree Rd)	RTSSP		\$	299,004
Irvine	Lake Forest Dr Signal Sync (Laguna Canyon Rd to Rockfield Blvd)/LHLL	RTSSP*		\$	35,904
Irvine	Alton Pkwy Signal Sync (Red Hill Ave to Portola Pkwy)	RTSSP		\$	1,061,775
Irvine	Barranca Pkwy Signal Sync (Red Hill to Robin Cir)	RTSSP		\$	1,553,088
Irvine	Bake Parkway Signal Synchronization (Irvine Center Drive to Portola Parkway)	RTSSP*		\$	282,280
Irvine	Irvine Center Drive / Edinger Avenue Signal Synchronization Project	RTSSP		\$	1,545,946
Irvine	Von Karman Avenue/Tustin Ranch Road Signal Synchronization Project	RTSSP		\$	1,320,271
Irvine	Irvine Boulevard Signal Synchronization Project	RTSSP		\$	364,169
Irvine	Culver Drive / Bonita Canyon Drive / Ford Road RTSSP	RTSSP		\$	1,139,728
Irvine	Main Street RTSSP	RTSSP*		\$	315,541
Irvine	MacArthur Boulevard Corridor RTSSP	RTSSP		\$	1,258,440
Irvine	Red Hill Avenue Corridor RTSSP	RTSSP*		\$	419,018
Irvine	Lake Forest Drive Traffic Signal Synchronization Project	RTSSP*		\$	106,788
Irvine	Barranca Parkway Traffic Signal Synchronization Project	RTSSP		\$	3,740,268
Irvine	Alton Parkway RTSSP	RTSSP*		\$	2,552,113
Irvine	Bake Parkway and Rockfield Boulevard RTSSP Project	RTSSP*		\$	1,063,465
La Habra	Lambert Rd Signal Sync (Olinda PI to Martinez Dr)	RTSSP		\$	509,636
La Habra	La Habra Blvd/Central Ave/State College Blvd Corridor	RTSSP		\$	420,019
La Habra	Imperial Highway/SR-90 Corridor	RTSSP		\$	2,760,001
La Habra	Lambert Road Corridor	RTSSP		\$	1,873,074
La Habra	Euclid Street Corridor	RTSSP		\$	4,961,013
Laguna Hills	Paseo de Valencia Signal Sync	RTSSP		\$	181,255
Laguna Hills	Lake Forest Dr Signal Sync (Laguna Canyon Rd to Rockfield Blvd)/LHLL	RTSSP*		\$	59,840
Laguna Hills	Pacific Park/Oso Pkwy Signal Sync (Aliso Viejo Pkwy to SR-241)/LHLL	RTSSP*		\$	78,436
Laguna Hills	Los Alisos Blvd Signal Sync (Paseo de Valencia to Altisima)	RTSSP*		\$	33,262
Laguna Hills	La Paz Rd Signal Sync (Olympiad Rd to Crown Valley Pkwy)	RTSSP*		\$	72,202
Laguna Hills	Alicia Parkway Traffic Signal Synchronization Project	RTSSP*		\$	415,620
Laguna Hills	Los Alisos Boulevard Route Project	RTSSP*		\$	137,093
Laguna Hills	Lake Forest Drive Traffic Signal Synchronization Project	RTSSP*		\$	213,577
Laguna Hills	Moulton Parkway/Golden Lantern Regional Traffic Signal Synchronization Program Project	RTSSP*		\$	623,918

Project P - Regional Traffic Signal Synchronization Program
City	Project Name	Program	Phase	M2 Allocation
Laguna Niguel	Crown Valley Pkwy Signal Sync (PCH to Antonio Pkwy)/MVJO	RTSSP*		\$ 190,944
Laguna Niguel	La Paz Rd Signal Sync (Olympiad Rd to Crown Valley Pkwy)	RTSSP*		\$ 72,202
Laguna Niguel	Alicia Parkway Traffic Signal Synchronization Project	RTSSP*		\$ 554,160
Laguna Niguel	Aliso Creek Road TSSP	RTSSP*		\$ 248,691
Laguna Niguel	Crown Valley Parkway Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 1,252,946
Laguna Niguel	Moulton Parkway/Golden Lantern Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 1,559,796
Laguna Woods	El Toro Road Regional Traffic Signal Synchronization	RTSSP		\$ 422,112
Laguna Woods	Moulton Parkway Regional Traffic Signal Synchronization	RTSSP		\$ 443,758
Lake Forest	Lake Forest Dr Signal Sync (Laguna Canyon Rd to Rockfield Blvd)/LHLL	RTSSP*		\$ 23,936
Lake Forest	Los Alisos Blvd Signal Sync (Paseo de Valencia to Altisima)	RTSSP*		\$ 16,631
Lake Forest	Santa Margarita Pkwy Signal Sync (El Toro Rd to Plano Trabuco Rd)	RTSSP*		\$ 14,178
Lake Forest	Bake Parkway Signal Synchronization (Irvine Center Drive to Portola Parkway)	RTSSP*		\$ 250,323
Lake Forest	Jeronimo Road Signal Synchronization (Lake Forest Drive to Olympiad Road)	RTSSP*		\$ 61,688
Lake Forest	Trabuco Road Signal Synchronization (Paseo Sombra to Marguerite Parkway)	RTSSP*		\$ 112,954
Lake Forest	El Toro Road Traffic Signal Synchronization Project	RTSSP*		\$ 834,335
Lake Forest	Los Alisos Boulevard Route Project	RTSSP*		\$ 17,137
Lake Forest	Lake Forest Drive Traffic Signal Synchronization Project	RTSSP*		\$ 1,121,278
Lake Forest	Alton Parkway RTSSP	RTSSP*		\$ 486,117
Lake Forest	Portola Parkway/Santa Margarita Parkway TSSP	RTSSP*		\$ 891,173
Lake Forest	Bake Parkway and Rockfield Boulevard RTSSP Project	RTSSP*		\$ 1,443,275
Los Alamitos	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 209,530
Mission Viejo	Crown Valley Pkwy Signal Sync (PCH to Antonio Pkwy)/MVJO	RTSSP*		\$ 106,488
Mission Viejo	Marguerite Pkwy Signal Sync (El Toro Rd to Via Escolar)/MVJO	RTSSP*		\$ 313,364
Mission Viejo	Pacific Park/Oso Pkwy Signal Sync (Aliso Viejo Pkwy to SR-241)/LHLL	RTSSP*		\$ 166,675
Mission Viejo	Los Alisos Blvd Signal Sync (Paseo de Valencia to Altisima)	RTSSP*		\$ 236,158
Mission Viejo	Santa Margarita Pkwy Signal Sync (El Toro Rd to Plano Trabuco Rd)	RTSSP*		\$ 70,889
Mission Viejo	Jeronimo Road Signal Synchronization (Lake Forest Drive to Olympiad Road)	RTSSP*		\$ 137,305
Mission Viejo	Trabuco Road Signal Synchronization (Paseo Sombra to Marguerite Parkway)	RTSSP*		\$ 85,211
Mission Viejo	La Paz Rd Signal Sync (Olympiad Rd to Crown Valley Pkwy)	RTSSP*		\$ 141,123
Mission Viejo	Alicia Parkway Traffic Signal Synchronization Project	RTSSP*		\$ 738,880
Mission Viejo	Marguerite Parkway Corridor	RTSSP		\$ 759,232
Mission Viejo	El Toro Road Traffic Signal Synchronization Project	RTSSP*		\$ 222,489
Mission Viejo	Olympia Road - Felipe Road Traffic Signal Synchronization	RTSSP		\$ 447,136
Mission Viejo	Los Alisos Boulevard Route Project	RTSSP*		\$ 377,007
Mission Viejo	Portola Parkway/Santa Margarita Parkway TSSP	RTSSP*		\$ 371,322
Mission Viejo	Crown Valley Parkway Regional Traffic Signal Synchronization Program Project	RTSSP*		\$ 626,473
Newport Beach	Newport Coast Dr Signal Sync (PCH to Bonita Canyon)	RTSSP		\$ 240,146
Newport Beach	San Joaquin Hills Rd Signal Sync (Jamboree Rd to Newport Coast Dr)	RTSSP		\$ 220,000
Newport Beach	Newport Boulevard Signal Synchronization (South)	RTSSP*		\$ 391,379
Newport Beach	Bristol Street Traffic Signal Synchronization Project	RTSSP*		\$ 339,232
Newport Beach	Coast Highway Traffic Signal Synchronization Project	RTSSP*		\$ 1,799,210

Project P - Regional Traffic Signal Synchronization Program

City	Project Name	Program	Phase	M2 Allocation
Orange	Tustin Ave/Rose Dr Signal Sync (1st St to Yorba Linda Blvd)/SNTA	RTSSP*		\$ 349,544
Orange	Ball Rd Signal Sync (Holder St to Tustin St)/ANAH	RTSSP*		\$ 117,347
Orange	Kraemer Boulevard Signal Synchronization	RTSSP*		\$ 608,380
Orange	Newport Avenue and Newport Boulevard Signal Synchronization (North)	RTSSP*		\$ 117,656
Orange	State College Boulevard Signal Synchronization (Via Burton to Garden Grove Boulevard)	RTSSP*		\$ 243,290
Orange	Chapman Avenue Corridor Traffic Signal Synchronization Project	RTSSP*		\$ 1,235,950
Orange	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 440,014
Orange	Garden Grove Boulevard TSSP (Valley View St Bristol St.)	RTSSP*		\$ 23,346
Orange	Main Street RTSSP	RTSSP*		\$ 210,361
Orange	Tustin Avenue - Rose Drive RTSSP	RTSSP		\$ 2,766,833
Placentia	Tustin Ave/Rose Dr Signal Sync (1st St to Yorba Linda Blvd)/SNTA	RTSSP*		\$ 111,219
Placentia	Kraemer Boulevard Signal Synchronization	RTSSP*		\$ 389,363
Rancho Santa Margarita	Los Alisos Blvd Signal Sync (Paseo de Valencia to Altisima)	RTSSP*		\$ 46,566
Rancho Santa Margarita	Santa Margarita Pkwy Signal Sync (El Toro Rd to Plano Trabuco Rd)	RTSSP*		\$ 226,845
Rancho Santa Margarita	Antonio Parkway Signal Synchronization (Ortega Highway to Santa Margarita Parkway)	RTSSP*		\$ 404,760
Rancho Santa Margarita	Los Alisos Boulevard Route Project	RTSSP*		\$ 102,820
Rancho Santa Margarita	Portola Parkway/Santa Margarita Parkway TSSP	RTSSP*		\$ 1,039,702
San Clemente	Avenida Pico Signal Sync (El Camino Real to Camino Celosia)	RTSSP		\$ 383,163
San Clemente	El Camino Real Signal Sync (Camino Capistrano to Avenida San Luis Rey)	RTSSP		\$ 333,473
San Clemente	Avenida Vista Hermosa Signal Sync (East/West Avenida Pico)	RTSSP		\$ 274,612
San Clemente	Camino De Los Mares Signal Sync (Camino Mira Costa to Camino Vera Cruz)	RTSSP		\$ 219,345
San Clemente	Camino Vera Cruz	RTSSP		\$ 192,686
San Juan Capistrano	Marguerite Pkwy Signal Sync (El Toro Rd to Via Escolar)/MVJO	RTSSP*		\$ 9,692
San Juan Capistrano	Del Obispo St Signal Sync (Ortega Hwy to PCH)	RTSSP		\$ 106,608
Santa Ana	MacArthur Blvd/Talbert Ave Signal Sync (SR-55 to Shopping Ctr)/SNTA	RTSSP*		\$ 207,399
Santa Ana	Tustin Ave/Rose Dr Signal Sync (1st St to Yorba Linda Blvd)/SNTA	RTSSP*		\$ 95,330
Santa Ana	Warner Ave Signal Sync (PCH to Red Hill Ave)/FVLY	RTSSP*		\$ 261,176
Santa Ana	Edinger Ave Signal Sync (Bolsa Chica St to SR-55)	RTSSP*		\$ 396,737
Santa Ana	First St/Bolsa Ave Signal Sync (Edwards St to Newport Ave)	RTSSP*		\$ 499,800
Santa Ana	Kraemer Boulevard Signal Synchronization	RTSSP*		\$ 876,067
Santa Ana	Bristol Street Traffic Signal Synchronization Project	RTSSP*		\$ 961,156
Santa Ana	Harbor Boulevard Corridor Signal Synchronization	RTSSP		\$ 1,852,080
Santa Ana	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 1,074,325
Santa Ana	Garden Grove Boulevard TSSP (Valley View St Bristol St.)	RTSSP*		\$ 23,346
Santa Ana	Main Street RTSSP	RTSSP*		\$ 648,612
Santa Ana	First Street/ Bolsa Avenue Regional Traffic Signal Synchronization	RTSSP*		\$ 1,407,960
Seal Beach	Seal Beach TMC Relocation and Fiber Optic Bridge Gap	RTSSP		\$ 541,327
Seal Beach	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 179,054
Seal Beach	Seal Beach Boulevard Signal Synchronizations and ATC Controller upgrades	RTSSP		\$ 546,750

Project P - Regional Traffic Signal Synchronization Program

City	Project Name	Program	Phase	M2 Allocation
Stanton	Chapman Avenue Corridor Traffic Signal Synchronization Project	RTSSP*		\$ 42,619
Stanton	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 216,936
Stanton	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 104,765
Tustin	Tustin Ave/Rose Dr Signal Sync (1st St to Yorba Linda Blvd)/SNTA	RTSSP*		\$ 15,888
Tustin	Warner Ave Signal Sync (PCH to Red Hill Ave)/FVLY	RTSSP*		\$ 12,437
Tustin	First St/Bolsa Ave Signal Sync (Edwards St to Newport Ave)	RTSSP*		\$ 137,200
Tustin	Newport Avenue and Newport Boulevard Signal Synchronization (North)	RTSSP*		\$ 373,731
Tustin	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 179,054
Tustin	Red Hill Avenue Corridor RTSSP	RTSSP*		\$ 1,017,615
Tustin	First Street/ Bolsa Avenue Regional Traffic Signal Synchronization	RTSSP*		\$ 394,229
Villa Park	Katella Avenue / Villa Park Road / Santiago Canyon Road RTSSP	RTSSP*		\$ 41,906
Westminster	Goldenwest St Signal Sync (SR-22 to PCH)/HBCH	RTSSP*		\$ 190,400
Westminster	Edinger Ave Signal Sync (Bolsa Chica St to SR-55)	RTSSP*		\$ 19,837
Westminster	First St/Bolsa Ave Signal Sync (Edwards St to Newport Ave)	RTSSP*		\$ 323,400
Westminster	Westminster Avenue/ 17th Street Corridor Traffic Signal Synchronization	RTSSP*		\$ 716,216
Westminster	Brookhurst St TSS (Commonwealth to Pacific Coast Hwy)	RTSSP*		\$ 199,716
Westminster	Magnolia Ave TSS (Commonwealth to Banning)	RTSSP*		\$ 325,403
Westminster	Garden Grove Boulevard TSSP (Valley View St Bristol St.)	RTSSP*		\$ 210,111
Westminster	First Street/ Bolsa Avenue Regional Traffic Signal Synchronization	RTSSP*		\$ 872,935
Yorba Linda	Yorba Linda Boulevard / Weir Canyon Road Corridor RTSSP	RTSSP		\$ 3,697,453

Project P - Regional Traffic Signal Synchronization Program

TOTAL \$ 119,632,264

Project Q - Local Fair Share Program

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Local Jurisdiction	Total			
Aliso Viejo	\$ \$ 7.461.806.59			
Anaheim	\$ \$ 62,167,831,51			
Brea	\$ 10,713,887.10			
Buena Park	\$ 16,655,961.63			
Costa Mesa	\$ 27,359,810.37			
Cypress	\$ \$ 9,871,831.93			
Dana Point	\$ 6,276,663.46			
Fountain Valley	\$ 11,624,315.68			
Fullerton	\$ 24,447,554.41			
Garden Grove	\$ 27,959,827.78			
Huntington Beach	\$ 36,576,442.52			
Irvine	\$ 51,679,058.75			
Laguna Beach	\$ 4,749,370.23			
Laguna Hills	\$ 6,371,153.36			
Laguna Niguel	\$ 12,489,147.85			
Laguna Woods	\$ 2,386,352.22			
La Habra	\$ \$ 9,944,215.13			
Lake Forest	\$ 14,980,279.28			
La Palma	\$ 2,973,540.60			
Los Alamitos	\$ 2,432,386.84			
Mission Viejo	\$ 17,428,126.52			
Newport Beach	\$ \$ 20,632,060.27			
Orange	\$ \$ 31,074,971.37			
Placentia	\$ 8,592,086.85			
Rancho Santa Margarita	\$ 7,948,983.58			
San Clemente	\$ 10,643,959.78			
San Juan Capistrano	\$ 7,144,965.23			
Santa Ana	\$ \$ 52,154,373.62			
Seal Beach	\$ 4,637,601.42			
Stanton	\$ \$ 5,615,864.47			
Tustin	\$ \$ 16,910,011.60			
Villa Park	\$ 979,416.87			
Westminster	\$ 16,003,689.61			
Yorba Linda	\$ 11,344,062.44			
County of Orange	\$ 37,718,685.61			
Total	\$ 597,950,296.48			

KEY:

Program / Phase

ACE - Arterial Capacity Enhancements
C - Construction
E - Engineering
FAST - Freeway Arterial / Streets Transitions
I-5 - Interstate 5
I-405 - Interstate 405
ICE - Intersection Capacity Enhancements
PI - Primary Implementation
R - Right-of-Way
RTSSP - Regional Traffic Signal Synchronization Program
RTSSP* - OCTA-led Regional Traffic Signal
Synchronization Program
SR-1 - State Route 1 (Pacific Coast Highway)
SR-22 - State Route 22
SR-55 - State Route 55
SR-57 - State Route 57
SR-90 - State Route 90 (Imperial Highway)
SR-91 - State Route 91
SR-133 - State Route 133
SR-241 - State Route 241
Multiple Phases

	ATTACHMENT B
	Measure M2 Eligibility Requirements Excerpt
1	III. REQUIREMENTS FOR ELIGIBLE JURISDICTIONS.
2	A. In order to be eligible to receive Net Revenues, a jurisdiction shall
3	satisfy and continue to satisfy the following requirements.
4	1. Congestion Management Program. Comply with the conditions
5	and requirements of the Orange County Congestion Management Program (CMP)
6	pursuant to the provisions of Government Code Section 65089.
7	2. Mitigation Fee Program. Assess traffic impacts of new
8	development and require new development to pay a fair share of necessary transportation
9	improvements attributable to the new development.
10	3. Circulation Element. Adopt and maintain a Circulation Element
11	of the jurisdiction's General Plan consistent with the MPAH.
12	4. Capital Improvement Program. Adopt and update biennially a
13	six-year Capital Improvement Program (CIP). The CIP shall include all capital
14	transportation projects, including projects funded by Net Revenues, and shall include
15	transportation projects required to demonstrate compliance with signal synchronization and
16	pavement management requirements.
17	5. Traffic Forums.
18	Participate in Traffic Forums to facilitate the planning of traffic
19	signal synchronization programs and projects. Eligible Jurisdictions and Caltrans, in
20	participation with the County of Orange and the Orange County Division of League of
21	Cities, will establish the boundaries for Traffic Forums. The following will be considered
22	when establishing boundaries:
23	a. Regional traffic routes and traffic patterns;
24	b. Inter-jurisdictional coordination efforts; and
25	c. Total number of Traffic Forums.
26	6. Local Traffic Signal Synchronization Plan. Adopt and maintain a
27	Local Traffic Signal Synchronization Plan which shall identify traffic signal synchronization
28	street routes and traffic signals; include a three-year plan showing costs, available funding
	B-7

and phasing of capital, operations and maintenance of the street routes and traffic signals;
 and include information on how the street routes and traffic signals may be synchronized
 with traffic signals on the street routes in adjoining jurisdictions. The Local Traffic Signal
 Synchronization Plan shall be consistent with the Traffic Signal Synchronization Master
 Plan.

7. Pavement Management Plan. Adopt and update biennially a
Pavement Management Plan, and issue, using a common format approved by the
Authority, a report every two years regarding the status of road pavement conditions and
implementation of the Pavement Management Plan.

a. Authority, in consultation with the Eligible Jurisdictions,
shall define a countywide management method to inventory, analyze and evaluate road
pavement conditions, and a common method to measure improvement of road pavement
conditions.

b. The Pavement Management Plan shall be based on:
either the Authority's countywide pavement management method or a comparable
management method approved by the Authority, and the Authority's method to measure
improvement of road pavement conditions.

18 The Pavement Management Plan shall include: C. 19 (i) Current status of pavement on roads; 20 (ii) A six-year plan for road maintenance and 21 rehabilitation, including projects and funding; 22 (iii) The projected road pavement conditions resulting 23 from the maintenance and rehabilitation plan; and 24 Alternative strategies and costs necessary to (iv) 25 improve road pavement conditions.

26 8. Expenditure Report. Adopt an annual Expenditure Report to
27 account for Net Revenues, developer/traffic impact fees, and funds expended by the
28 Eligible Jurisdiction which satisfy the Maintenance of Effort requirements. The Expenditure

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Report shall be submitted by the end of six (6) months following the end of the jurisdiction's
 fiscal year and include the following:

a. All Net Revenue fund balances and interest earned.

b. Expenditures identified by type (i.e., capital, operations,
administration, etc.), and program or project .

9. Project Final Report. Provide Authority with a Project Final
7 Report within six months following completion of a project funded with Net Revenues.

8

3

10. Time Limits for Use of Net Revenues.

9 Agree that Net Revenues for Regional Capacity Program a. 10 projects and Regional Traffic Signal Synchronization Program projects shall be expended 11 or encumbered no later than the end of the fiscal year for which the Net Revenues are 12 programmed. A request for extension of the encumbrance deadline for no more than 13 twenty-four months may be submitted to the Authority no less than ninety days prior to the 14 deadline. The Authority may approve one or more requests for extension of the encumbrance deadline. 15

b. Agree that Net Revenues allocated for any program or
project, other than a Regional Capacity Program project or a Regional Traffic Signal
Synchronization Program project, shall be expended or encumbered within three years of
receipt. The Authority may grant an extension to the three-year limit, but extensions shall
not be granted beyond a total of five years from the date of the initial funding allocation.

c. In the event the time limits for use of Net Revenues are
not satisfied then any retained Net Revenues that were allocated to an Eligible Jurisdiction
and interest earned thereon shall be returned to the Authority and these Net Revenues and
interest earned thereon shall be available for allocation to any project within the same
source program.

26 11. Maintenance of Effort. Annual certification that the Maintenance
27 of Effort requirements of Section 6 of the Ordinance have been satisfied.

28

12. No Supplanting of Funds. Agree that Net Revenues shall not be

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1 used to supplant developer funding which has been or will be committed for any 2 transportation project. 3 13. Consider, as part of the Eligible Jurisdiction's General Plan, land 4 use planning strategies that accommodate transit and non-motorized transportation. 5 Β. Determination of Non-Eligibility A determination of non-eligibility of a jurisdiction shall be made only 6 7 after a hearing has been conducted and a determination has been made by the Authority's 8 Board of Directors that the jurisdiction is not an Eligible Jurisdiction as provided hereinabove. 9 IV. 10 ALLOCATION OF NET REVENUES; GENERAL PROVISIONS. 11 Α. Subject to the provisions of the Ordinance, including Section II above, 12 use of the Revenues shall be as follows: 13 1. First, the Authority shall pay the State Board of Equalization for 14 the services and functions; 15 2. Second, the Authority shall pay the administration expenses of 16 the Authority; 17 3. Third, the Authority shall satisfy the annual allocation 18 requirement of two percent (2%) of Revenues for Environmental Cleanup; and 19 4. Fourth, the Authority shall satisfy the debt service requirements 20 of all bonds issued pursuant to the Ordinance that are not satisfied out of separate 21 allocations. 22 Β. After providing for the use of Revenues described in Section A above, 23 and subject to the averaging provisions of Section D below, the Authority shall allocate the 24 Net Revenues as follows: 25 1. Forty-three percent (43%) for Freeway Projects; 26 2. Thirty-two percent (32%) for Street and Road Projects; and 27 3. Twenty-five percent (25%) for Transit Projects. C. 28 The allocation of thirty-two percent (32%) of the Net Revenues for B-10 214007.11

External Funding for Streets and Roads Improvements

	Leveraged through M2 Calls			
M2 Program	Funding	Amount		
RCP	Proposition 1B - SLPP		\$	23,396,003
RTSSP	Mobile Source Air Pollution Reduction Review Committee		\$	1,250,000
RTSSP	SB 1 - Local Partnership Program		\$	6,693,813
		Subtotal	\$	31,339,816

	Other External Funding			
M2 Program	Funding	Amount		
RTSSP	Proposition 1B - Traffic Light Synchronization Program		\$	3,817,662
RTSSP	Congestion Mitigation and Air Quality		\$	1,773,863
RTSSP	SB 1 - Solutions for Congested Corridors Program		\$	12,000,001
	S	ubtotal	\$	17,591,526

Supplemental Non-M2 Calls		
Funding	Am	ount
Proposition 1B - SLPP	\$	24,528,000
Regional Surface Transportation Program - Arterial Pavement		
Management Program	\$	19,864,978
Coronavirus Response and Relief Supplemental Appropriations -		
Pavement Management Relief Funding	\$	9,920,921
Subtotal	\$	54,313,899

Total External Funding \$ 103,245,241

OC Bridges Program	M2	Sta	te/Federal/Other	Project Total
State College Boulevard Undercrossing Project	\$ 15,460,000	\$	83,920,000	\$ 99,380,000
Raymond Avenue Undercrossing Project	\$ 22,373,000	\$	103,046,000	\$ 125,419,000
Placentia Avenue Undercrossing Project	\$ 27,453,000	\$	37,086,000	\$ 64,539,000
Kraemer Boulevard Undercrossing Project	\$ 22,981,000	\$	40,849,000	\$ 63,830,000
Orangethorpe Avenue Overcrossing Project	\$ 16,182,000	\$	89,861,000	\$ 106,043,000
Tustin Avenue/Rose Avenue Overcrossing Project	\$ 26,384,000	\$	70,254,000	\$ 96,638,000
Lakeview Avenue Overcrossing Project	\$ 21,792,000	\$	88,910,000	\$ 110,702,000
	\$ 152,625,000	\$	513,926,000	\$ 666,551,000

Acronyms
M2 - Measure M2
RCP - Regional Capacity Program
RTSSP - Regional Traffic Signal Synchronization Program
SB 1 - SB 1 (Chapter 5, Statutes of 2017)
SLPP - State Local Partnership Program



Measure M2 Streets and Roads Program Milestone





Measure M2 (M2) Commitment



- **Fix potholes and resurface streets**
- **Synchronize traffic lights in every community**
- Expand Metrolink rail and connect it to local communities
- F
- Relieve congestion on freeways
- Provide transit services, at reduced rates, for seniors and people with disabilities
- Reduce air and water pollution and protect local beaches by cleaning up oil runoff from roadways



ENVIRONMENTAL

A total of 5% of OC Go Freeway Program funds is allocated to the Freeway Environmental Mitigation Program

M2 Streets and Roads Programs









Provides competitive funding to improve busy streets and intersections on Orange County's Master Plan of Arterial Highways.

Regional Traffic Signal Synchronization Program (Project P)

Provides competitive funding to support projects across city boundaries that synchronize traffic signals to ensure drivers hit the most green lights during peak traffic hours.



Local Fair Share (Project Q)

Provides formula-based funds to preserve existing streets and roads and provide other transportation improvements based on the priorities and needs of local agencies.



- From 2011 to 2022, over \$1 billion in M2 funds have been invested locally in streets and roads.
- The funding has:
 - Allowed Orange County to keep up with population growth and economic activities
 - $_{\odot}$ Lead to a more complete roadway network
 - Provided safety enhancements: repaired sidewalks, upgraded pedestrian amenities with American with Disabilities Act features, added bike lanes, signage, etc.
 - o Improved congestion, lessening stop-and-go traffic and benefitting the environment
 - Maintained Orange County's standing as having the best pavement conditions in the state

\$1 Billion Investment by the Numbers OCGO



Local Tax Dollars at Work

Regional Capacity Program



- Closes gaps in the local road network
- #> Improves intersections to enhance street operations
- Provides better interfaces with the highway system
- Investment to date:\$283.4 million

Project Examples



Newport Boulevard Improvements City of Newport Beach Bristol Street Improvements City of Santa Ana

- 2,300 intersections
 coordinated across
 621 miles of street
- Invests in futureproofing the system
- Improves traffic flow and makes the system more efficient
- Investment to date:\$119.6 million

Project Examples



Irvine Center Drive / Edinger Avenue City of Irvine



Marguerite Parkway City of Mission Viejo



A Pavement improvements repair aging streets for smoother, safer travel

- Supplements roadway maintenance funds to fix potholes
- Flexibility for local transportation priorities
- Investment to date:\$598.0 million

Project Examples



Bristol Street City of Costa Mesa



Laguna Beach Trolley City of Laguna Beach

M2 Safeguards



- Specific eligibility requirements
- Supplement, rather than supplant, existing investments
- Prioritize regional projects based on objective criteria
- Formula funding balances miles, population and sales tax generation
- Ongoing monitoring by independent Taxpayer Oversight Committee

Additional Investments



Leveraging of external funds
 State and federal
 Local matching dollars

Special grants preserve roadway conditions

⇒ OC Bridges program





OC Bridges

Key Takeaways



- M2 has invested \$1 billion in local streets and roads to improve the quality of life in Orange County, whether you drive, cycle, walk, vanpool or take OC Bus
- Provides reliable and flexible funding source for cities and the County
- The investment has helped connect communities and make the streets and roads system work better and last longer
- Examples of local agency projects are highlighted at: <u>www.ocgo.com/streets</u>



October 10, 2022

To: Members of the Board of Directors

- From: Andrea West, Interim Clerk of the Board
- Subject: Measure M2 Next 10 Delivery Plan: Market Conditions Key Indicators Analysis and Forecast

Executive Committee Meeting of October 3, 2022

Present: Chairman Murphy, Vice Chairman Hernandez, Directors Bartlett, Do, Hennessey, and Muller Absent: Director Jones

Committee Vote

This item was declared passed by the Members present.

Committee Recommendation

Continue to monitor market conditions key indicators and provide updates to the Board of Directors as appropriate.



October 3, 2022

From: Darrell E. Johnson, Chief Executive Officer

Subject: Measure M2 Next 10 Delivery Plan: Market Conditions Key Indicators Analysis and Forecast

apple

Overview

At the direction of the Board of Directors, the Orange County Transportation Authority monitors construction market conditions. Annually, a report on Market Conditions Key Indicators Analysis and Forecast is presented to the Board of Directors to provide insight into potential project delivery cost drivers that could affect the Measure M2 Next 10 Delivery Plan. The last effort was presented to the Board of Directors on October 11, 2021. An updated forecast has been prepared and a presentation on the results of this effort is provided.

Recommendation

Continue to monitor market conditions key indicators and provide updates to the Board of Directors as appropriate.

Background

On November 7, 2006, Orange County voters approved the renewal of Measure M, the one-half-cent sales tax for transportation improvements. The Orange County Transportation Authority (OCTA) Board of Directors (Board) continues to advance the implementation of Renewed Measure M (M2) commitments by adopting delivery plans. The delivery plans are designed to validate the ability to implement all projects and programs through 2041 as promised to the voters, ensure fiscal sustainability, and implement projects and programs effectively and expeditiously.

In 2016, the Board directed staff to acquire better insight into the construction market outlook. The intent was to provide an analysis of trends for near-term construction market conditions in tandem with the annual sales tax revenue update to assist with prudent project delivery decisions.

OCTA retained the Orange County Business Council (OCBC), led by Dr. Wallace Walrod, Chief Economic Advisor to OCBC, and Dr. Marlon Boarnet, Professor and Chair of the Department of Urban Planning and Spatial Analysis at the University of Southern California to provide this analysis.

The results of the initial analysis were presented to the Board in September 2017. The report identified several near-term cost indicators that could influence the construction market and, by extension, M2 project delivery. These included the pace of transportation construction programs in the neighboring counties (resulting in the strained supply of materials and construction labor), construction wage pressures, sustained low statewide unemployment, and residential construction demand. Overall, OCBC's analysis identified a strong potential that OCTA could experience an increasing cost environment in the near term.

Following this presentation, the Board directed staff to continue to work with OCBC to monitor and track the indicators and provide the Board with updates to cost risk factors for project delivery. In response, OCBC spent early 2018 analyzing trends and creating an Infrastructure Construction Cost Pressure Index (ICCPI) model. On September 10, 2018, OCBC presented its ICCPI model, and its forecast for 2018, 2019, and 2020 cost fluctuation ranges, to the Board.

Discussion

OCBC continues to monitor trends in material costs, labor costs, and general economic conditions. Relevant data for each model component is analyzed to determine a range of potential cost impacts to update the forecast biannually. The fall 2022 update provides a three-year forecast through 2025. Attachment A summarizes the fall 2022 forecast and also includes prior forecasts for reference. The full report on the ICCPI model update is included in Attachment B.

The ICCPI model is a forecasting tool, with scores indicating a forecast of fluctuations in public construction costs expressed in ranges. Index scores of two and three indicate somewhat low to normal inflationary environments in the range of one to four percent. Conversely, a score of four is a high inflation environment in the range of six to 11 percent. Extreme index values of zero and five correspond to the unusual conditions observed in Orange County immediately before and during the Great Recession and the high-cost inflation environment that occurred in the building boom years of the early 2000s.

Using the ICCPI model, OCBC forecasts a score of four in 2023 and 2024, which represents a potential range of higher cost fluctuation of six to 11 percent. The forecast for 2025 drops to a score of two, which anticipates a tempering of economic conditions.

OCBC Orange County Transportation ICCPI Score, 2023-2025						
Year Index Score Range of Cost Fluc						
2023	4	Six percent to 11 percent				
2024	4	Six percent to 11 percent				
2025	2	One percent to two percent				

The fall update predicts continued volatile market conditions forecasted in spring 2022 as cost pressures remain high. Major drivers include low unemployment rates coupled with high inflation rates, which could result in rising labor and material prices. Despite the Federal Reserve raising interest rates to curb inflation, the national and regional labor market remains strong. Additionally, some material prices saw large increases, specifically, Portland Cement Concrete pavement, aggregate base, and steel bar. Since full 2022 data is not yet available, the percentages calculated in the report are subject to change. As in prior forecasts, OCBC indicates that OCTA will also need to be aware and ready to respond to cost pressures that cannot be modeled. Examples of such forces include:

- Pace of Federal Reserve interest rate hikes largely unknown and subject to rapid changes,
- Lingering impacts of the pandemic, zero-tolerance policy in China, and
- General political uncertainty both domestically and internationally.

Overall, OCBC's analysis identifies a potential that in 2023 and 2024, OCTA may experience a high inflationary cost environment. To mitigate potential cost pressures, OCTA's Project Controls department monitors and adjusts project cost escalation assumptions according to market trends. Project Controls' cost estimating process uses historical information, as well as current trends in the market, and follows a consistent and defined process. Looking back at the last 20 years, OCTA's cost estimates have included a three percent escalation, which, on average during this timeframe, provided the appropriate escalation to deliver projects successfully. Currently, using 3.5 percent for construction escalation, as well as incorporating contingency based on the project type and complexity, is staff's preferred approach to cost estimating. Given the continued high market fluctuations in the current year, staff recommends continuing this effort to monitor key indicators to inform OCTA's delivery plans.

Summary

OCBC has prepared an update on construction market conditions to help OCTA with M2 project delivery planning. The update considers fluctuations in material costs, labor costs, and general economic conditions and trends. The Market Conditions Key Indicators Analysis and Forecast conclude that OCTA may experience a high inflationary cost environment in 2023 and 2024, with a tempering of cost pressures in 2025.

Attachments

- A. Orange County Business Council, Orange County Transportation ICCPI Score, Fall 2018 through Fall 2022 Forecasts
- B. Orange County Business Council, Orange County Transportation Infrastructure Construction Cost Pressure Index, Fall 2022, Prepared for the Orange County Transportation Authority

Prepared by:

ancarcal

Francesca Ching Section Manager, Measure M2 Program Management Office (714) 560-5625 Approved by:

Kia Mortazavi Executive Director, Planning (714) 560-5741

Orange County Business Council Orange County Transportation ICCPI Score Fall 2018 through Fall 2022 Forecasts

Orange County Business Council Orange County Transportation ICCPI Score									
Year	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
	2018	2019	2019	2020	2020	2021	2021	2022	2022
2018	4								
2019	3	4							
2020	3	3	3	3	0				
2021		3	3	2	1	1	5		
2022			3	2	1	2	4	5	5
2023					3	4	4	4	4
2024							4	4	4
2025									2

Range of Cost Fluctuations by Index Score						
Index Score	Low	Midpoint	High			
0	-17%	-9.5%	-2%			
1	-2%	-0.5%	1%			
2	1%	1.5%	2%			
3	2%	4%	6%			
4	6%	8.5%	11%			
5	11%	25.5%	40%			

ICCPI – Infrastructure Construction Cost Pressure Index

ATTACHMENT B

Orange County Business Council Orange County Transportation Infrastructure Construction Cost Pressure Index Fall 2022 Prepared for the Orange County Transportation Authority

OCBC Research Team

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Background and Purpose

As a supplementary examination to the Next 10 Delivery Plan: Market Conditions Forecast and Risk Analysis study delivered by Orange County Business Council (OCBC) in September 2017, the Orange County Transportation Authority (OCTA) Board of Directors (Board) requested further study and exploration of potential cost fluctuations beyond existing cost analysis from the California Department of Transportation's (Caltrans) Construction Cost Index (CCI) and internal OCTA analysis. The OCTA Board requested an ongoing analysis of construction cost factors, with periodic updates. In response, the OCBC team developed the Orange County Transportation Infrastructure Construction Cost Pressure Index (ICCPI), which is updated every six months.

To develop the cost pressure index, the OCBC team analyzed annual trends in material costs, labor costs and general economic conditions to determine a range of potential cost increases with a time horizon that is typically three years into the future. The index updates begin by collecting relevant market data and indicators and then performing data analytics on to assess current cost pressure and forecast future cost pressure. In doing so, and providing these findings to OCTA's Board, more accurate budgets can be determined reducing the potential risk of cost pressure and project delivery slowdowns due to financial constraints. This September 2022 memo updates the March 2022 forecast of the Orange County Transportation ICCPI and provides annual cost pressure index forecasts for the remainder of 2022 and for 2023, 2024, and 2025.

Findings and Discussion

The most recent available input data were gathered to update the ICCPI. That includes first quarter 2022 data for the following index components: California's unemployment rate, California building permits, Caltrans index data on infrastructure construction materials costs as well as 4th quarter data on Orange County and Southern California construction industry wages. 2022 values for building permits and unemployment rates were estimated from changes from first quarter 2021 to first quarter 2022 and construction wages from fourth quarter 2020 to fourth quarter 2021.

Following the trend established in the last update, wages continue to climb while the inflation rate remains stubbornly high, leading to elevated material and labor prices. Despite recent Fed actions in raising interest rates in an effort to mitigate the high inflationary environment, the labor market remains strong, suggesting that additional interest rate increases are likely to occur in the near future.

In the March 2022 update, the OCTA Construction Cost Pressure Index jumped to a reading of 5 for 2022, the highest inflation environment observed during the benchmark 1994-2017 time period, before dropping to an index of 4 in 2023 and 2024. Six months prior to that, the year-ago September 2021 Construction Cost Pressure Index predicted a high-inflation cost change environment in 2021 (index value of 5), declining slightly in 2022 and 2023 (to index values of 4).

The new estimate for September 2022 is an index value of 5 for the remainder of 2022, dropping to an index of 4 in both 2023 and 2024, before declining to an index of 2 in 2025. This update highlights the continued expected high-inflation environment first seen in September 2021 while also forecasting a light at the end of the tunnel, with a clear signal that inflationary pressures may begin to recede by 2025.

Table 1: September 2022 Update to Three-Year Orange County Transportation Infrastructure Construction Cost Pressure Index, with comparison to March 2022, September 2021, March 2021, and September 2020 index estimates

Year	Index	Index	Index	Index	Index
	(September	(March 2022)	(September	(March 2021)	(September.
	2022) with	with annual	2021) with	with annual	2020) with
	annual cost	cost increase	annual cost	cost increase	annual cost
	increase range	range	increase range	range	increase range
2020	Not Estimated	Not Estimated	Not Estimated	Not Estimated	0 (-17% to -2%)
2021	Not Estimated	Not Estimated	5 (11% to 40%)	1 (-2% to 1%)	1 (-2% to 1%)
2022	5 (11% to 40%)	5 (11% to 40%)	4 (6% to 11%)	2 (1% to 2%)	1 (-2% to 1%)
2023	4 (6% to 11%)	4 (6% to 11%)	4 (6% to 11%)	4 (6% to 11%)	3 (2% to 6%)
2024	4 (6% to 11%)	4 (6% to 11%)	4 (6% to 11%)	Not Estimated	Not Estimated
2025	2 (1% to 2%)	Not Estimated	Not Estimated	Not Estimated	Not Estimated

The index values correspond to ranges of forecast annual infrastructure construction cost increases shown in Table 2.

Forecasting Method

OCBC used a series of regression analyses and forward-looking projections to create the ICCPI. The ICCPI provides a ranking from 0 to 5, with each rank corresponding to a range of percent changes in overall construction costs. These ranges are built to be forecasting tools, with scores indicating public construction forecast cost increase. Values of 2 and 3 indicate somewhat normal inflationary environments. A value of 4 is a high inflation environment. A value of 1 is a low inflation/deflationary environment. Values of 0 and 5 correspond to the most extreme conditions observed in Orange County over the past three decades, and hence the ranges for those values are wide due to the unusual nature of the highly deflationary environment that occurred immediately prior to and during the Great Recession and the high-cost inflation environment that occurred in the building boom years of the early 2000s.

Table 2 below highlights each ICCPI ranking and the proposed range of cost fluctuations which have been provided on a low, midpoint, and high scale.

	Projected Annual	Projected Annual	Projected Annual
Index	Cost Increase,	Cost Increase,	Cost Increase,
Value	Low	Midpoint	High
0	-17%	-9.5%	-2%
1	-2%	-0.5%	1%
2	1%	1.5%	2%
3	2%	4%	6%
4	6%	8.5%	11%
5	11%	25.5%	40%

Table 2: OCBC Orange County Transportation ICCPI Scores

<u>Methodology</u>

To determine the Transportation ICCPI, the OCBC team started by aggregating several datasets, measures, and indicators on an annual basis as far back as 1972.

The index was built with the following key data inputs:

- California's unemployment rate,
- Building permits in California,
- Selected construction materials costs for California, from Caltrans, and
- Orange County construction labor costs.

The OCBC team examined how the various measures and indicators of construction costs varied with changes and recent past trends in construction inflation. Using statistical analyses, the research team has built a forecasting model that projects forward cost increases and predicted cost increases are grouped into the categorical ranges shown in Table 2.

Recent Data Trends

Table 3 shows the recent pattern for three key components of the construction cost pressure index. While building permits in California declined from 2018 to 2020, they jumped by 12.2 percent in 2021 and are expected to decline slightly by 3.4 percent in 2022. (The 2022 estimate is based on the change in permits from first quarter 2021 to first quarter 2022.) This decline in building permits is most likely tied to the recent slowdown in the housing market. Rising interest rate and record home prices in Southern California have resulted in an increasingly smaller pool of residents able to afford the purchase of a home. These trends serve to reduce overall demand and slow the pace of new home developments. Despite recent interest rate increases by the Federal designed to rein in inflation, the national and regional labor markets remain strong, and wages continue to trend upward. The estimated change in Orange County construction salaries for 2021 is based in the change from fourth quarter 2020 to fourth quarter 2021.

 Table 3: Infrastructure Cost Correlates, Annual Percentage Changes, 2016-2022

Year	California Building Permits	% Change year-on- year	California Unemployment Rate	% Change year- on-year	OC Construction Labor Costs (avgerage annual wage)	% Change year- on-year
2016	102,350	4.2%	5.5%	-11.6%	\$67,179	3.8%
2017	114,780	12.1%	4.8%	-12.9%	\$71,474	6.4%
2018	113,502	-1.1%	4.2%	-12.0%	\$74,669	4.5%
2019	109,904	-3.2%	4.1%	-3.4%	\$77,288	3.5%
2020	104,544	-4.9%	10.3%	153%	\$81,460	5.4%
2021	117,291	12.2%	7.3%	-28.9%	\$84,040**	3.2%
2022	113,360*	-3.4%	4.0*	-44.9%	-	-

* Estimated from Quarter 1 (Q1) change, 2022 to 2021, converted to an annualized estimate

**Estimated from Quarter 4 (Q4) change, 2020 to 2021, converted to an annualized estimate

The appendix shows annual changes in materials costs in recent years. The 2022 values are the percent change from Q1 2021 to Q1 2022, and hence represent an estimate that will be revised in the next six-month update. Portland Cement Concrete (PCC) pavement costs saw the largest increase, 105 percent, with aggregate Base costs rising by 38.4 percent. Steel bar costs rose by 24.4 percent. Note that all of these are percent increases based on the change from Q1 2021 to Q1 2022, converted to an annual value for 2022 that is then compared to 2021 annual. The large increases in PCC pavement, aggregate base, and steel bar costs reflect changes from Q1 2021 to Q1 2022 that might be revised downward when full 2022 data are available. With an economic downturn expected in late 2022 or early 2023, prices are expected to continue to shift.

Appendix: Changes in Infrastructure Materials Costs 2016-2022 (all values are percent year-on-year changes, 2022 values forecast from first quarter changes, 2021 to 2022)

Year	Aggregate	PCC	PCC	Steel	Steel Bar
		Pavement	Structure	Structure	
2016	9.4%	8.6%	7.7%	35.0%	26.3%
2017	24.2%	106.8%	26.8%	-21.0%	-51.0%
2018	18.9%	25.9%	17.2%	9.4%	-58.8%
2019	4.6%	-11.1%	-4.2%	53.6%	0.8%
2020	14.9%	-20.5%	10.0%	-9.3%	-36.2%
2021	-27.5%	-19.8%	23.5%	5.0%	6.6%
2022*	38.4%	105.1%	-2.2%	-3.0%	24.4%

*The annual 2022 change in value represents the change between Q1 2021 and Q1 2022.

Orange County Transportation Infrastructure Construction Cost Pressure Index, Fall 2022

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Orange County Business Council

September 2022

Orange County Transportation Infrastructure Construction Cost Pressure Index Model Components

- <u>Economic Trends</u> State-level building permits and unemployment rate (Census and California Employment Development Department (EDD));
- <u>Material Costs</u> Construction Aggregate, PCC Pavement, PCC Structural Concrete, Structural Steel and Bar Steel (Caltrans).
- <u>Labor Costs</u> Localized construction wages of NAICS defined sectors provided by Bureau of Labor Statistics (BLS).
- <u>Economic Conditions</u> Tight economy in 2002-2005 and slack economy in 2007-2011.

3-Year Moving Average of Year-Over-Year Percent Change in Caltrans CCI and Building Permits



-3-Year Moving Average of % Change in CA Building Permits
Year-Over-Year Percent Change in Caltrans CCI and CA Unemployment Rates



-YoY % Change CA Unemployment Rate

Forecast and Range of Orange County Transportation Infrastructure Cost Increases by Index Value

- 2022 Forecasted Index Value: 5
- 2023 Forecasted Index Value: 4
- 2024 Forecasted Index Value: 4
- 2025 Forecasted Index Value: 2

Range of Cost Fluctuations by Index Score				
Index	Low	Medium	High	
0	-17%	-9.5%	-2%	
1	-2%	-0.5%	1%	
2	1%	1.5%	2%	
3	2%	4%	6%	
4	6%	8.5%	11%	
5	11%	25.5%	40%	

Recovery from the Pandemic Begins

- Building activity begins to slow as record prices and interest rate increases reduces affordability;
- Despite uncertain economic outlook, the labor market remains strong and surprisingly tight;
- Wages continue to tick higher thanks to a tight labor market but largely offset by inflation;
- Building materials costs (PCC Structure, Steel Structure) showed small declines (-2 to -3%) outweighed by increases in Aggregate base, PCC Pavement, and Steel Bar (24% to 105%).

Year-over-Year Changes in California Building Permits, California Unemployment Rate and Orange County Construction Labor Costs, 2016-2022

Year	California Building Permits	% change year- on-year	California Unemployment Rate	% change year- on-year	OC Construction Labor Costs (avg. annual wage)	% change year- on-year
2016	102,350	4.2%	5.5%	-11.6%	\$67,179	3.8%
2017	114,780	12.1%	4.8%	-12.9%	\$71,474	6.4%
2018	113,502	-1.1%	4.2%	-12.0%	\$74,669	4.5%
2019	109,904	-3.2%	4.1%	-3.4%	\$77,289	3.5%
2020	104,554	-4.9%	10.3%	+153%	\$81,460	5.4%
2021	117,291	12.2%	7.3%	-28.9%	\$84,040**	3.2%
2022*	113,360	-3.4%	4.0%	-44.9%	-	-

*2022 values projected from year-on-year changes in quarterly data, 1st quarter 2021 to 1st quarter 2022. ** 2021 values projected form year-on-year changes in quarterly data, 4th quarter 2020 to 4th quarter 2021.

OCBC Infrastructure Construction Cost Forecast

- Systematic Risks Supply chain disruptions, Russia-Ukraine War
 - While supply chain is improving, continued disruptions expected abroad.
 - Despite Fed intervention, inflation remains stubbornly high.

OCBC OC Transportation Infrastructure Construction Cost Index Score, 2022-2025

Year	Index Score	Range of Cost Fluctuation
2022	5	11% to 40%
2023	4	6% to 11%
2024	4	6% to 11%
2025	2	1% to 2%

- Idiosyncratic Risks not predictable and therefore not in model
 - Pace of Fed interest rate hikes largely unknown, subject to rapid changes.
 - Lingering impacts of pandemic, zero tolerance policy in China (Shenzhen).
 - General political uncertainty both domestically and internationally.

Questions



October 10, 2022

Dandoff

To: Members of the Board of Directors

From: Darrell E. Johnson, Chief Executive Officer

Subject: Long-Range Transportation Plan Workshop

Overview

The Long-Range Transportation Plan defines a vision for Orange County's transportation system that reflects established plans and policies and responds to forecasted system needs. This vision also guides the Orange County Transportation Authority's input into the Regional Transportation Plan, prepared by the Southern California Association of Governments. The Measure M2 projects and programs and the Orange County Transportation Authority's public transit services are key elements of the Long-Range Transportation Plan. However, consideration of additional strategies is warranted to ensure that the established goals are addressed. Strategies to fulfill this need are presented for discussion.

Recommendations

- A. Provide input to staff on the Long-Range Transportation strategies and Short-Term Action Plan.
- B. Direct staff to prepare the draft Long-Range Transportation Plan for public review starting November 28, 2022.

Background

The Orange County Transportation Authority (OCTA) is preparing the Long-Range Transportation Plan (LRTP) as input into the Southern California Association of Governments' (SCAG) 2024 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). This LRTP analyzes travel conditions based on a 2045 horizon year, which assumes a nine percent growth in population and a 12 percent growth in employment over the 2019 base year. The population and employment forecasts were developed by the California State University of Fullerton's (CSUF) Center for Demographic Research (CDR),

in consultation with Orange County local agencies and the Orange County Council of Governments.

The LRTP goals were presented to the Board of Directors (Board) in September 2021. The goals focus on delivering existing commitments identified in Measure M2 (M2), providing safe and reliable transit service, improving system performance, expanding system choices, and supporting sustainability. These goals respond to several factors that are influencing Orange County's transportation system, such as growing travel demand and built-out roadways, evolving travel trends, increasing climate-related risks, a changing funding outlook, and ensuring equity is incorporated in the transportation planning process.

In July 2022, a scenario was presented to the Board that highlighted the need to begin planning for Orange County's future transportation system beyond the 2041 sunset of the M2 local sales tax. In response, the Board supported a proposed set of seven conceptual strategies known as the Paths to Success. This report will provide more detail on the elements and benefits associated with each of the Paths to Success and present potential next steps for discussion.

Discussion

The Paths to Success are intended to chart a course for OCTA that responds to the previously noted factors influencing transportation in Orange County, including the loss of several key programs and services that are currently funded by M2. By doing so, the Paths to Success identify the types of projects and programs that effectively address the LRTP goals and respond to state and federal policies. These additional strategies are included in the draft 2045 Preferred Plan, outlined below.

Draft 2045 Preferred Plan

The draft 2045 Preferred Plan scenario is founded on the M2 program of projects. This includes delivery of 13 freeway improvement projects, enhanced Metrolink service, OC Streetcar service, and funding M2 local streets and roads programs, local transit services, and environmental cleanup projects through at least 2041. Several projects and services also carry over from the 2018 LRTP, including continuation of safe and reliable countywide bus transit service, buildout of the city circulation elements, expansion of the active transportation network, and select highway improvements. A listing of the projects included in the draft 2045 Preferred Plan model network is included in Attachment A.

The draft 2045 Preferred Plan also assumes that the California Department of Transportation (Caltrans) will transition Orange County's carpool lane system over time to a tolled express lane system. The tolled express lane assumption involves increasing the high-occupancy vehicle (HOV) requirement from two to

three persons and allowing non-HOVs access for a fee. This transition is intended to address the many segments of Orange County's carpool network that are not or will not be meeting federal performance standards. Caltrans is currently advancing a project-level environmental analysis study on Interstate 5 (I-5), approximately from State Route 55 (SR-55) to the Los Angeles County Line.

In 2020, OCTA completed an Express Lanes Network Study (ELNS) that identified a preferred phasing strategy for the conversion to tolled express lanes should Caltrans proceed with this approach. In summary, the ELNS recommends corridors for three prioritized phases, as depicted in Attachment B. It should be noted that the years associated with the phases only represent the model year used to analyze performance and do not represent a target implementation date. The following segments are recommended in Phase 1:

- I-5 from State Route 57 (SR-57) to the Los Angeles County Line,
- State Route 91 from SR-55 to the Los Angeles County Line, and
- SR-57 from I-5 to the Los Angeles County Line.

A discussion of the recommended ELNS phasing strategy is anticipated to be included in the draft LRTP. The intent is to communicate a locally preferred phasing approach to Caltrans and SCAG for consideration in their phasing strategies. A summary of the ELNS is provided in Attachment C.

In addition to the assumptions described above, the draft 2045 Preferred Plan includes projects, programs, and services for each of the seven Paths to Success, as outlined below.

1. Extend or Modify Select M2 Programs

As previously noted, M2 will sunset in 2041. The LRTP explores and suggests that M2-funded programs that provide operational support for our transit system are important to the functionality of the transportation system. Therefore, their continuation should be considered independent of how they would be funded in the future. This includes but is not limited to the following services:

- Community circulators,
- Metrolink service,
- Transit accessibility and senior mobility programs, as well as,
- Environmental programs.

It may also be necessary to revisit and modify some programs to ensure their relevancy through 2045 and beyond. For example, the signal synchronization program should be reviewed to ensure that it is flexible enough to adapt to new technologies that support more dynamic responses to traffic patterns and for real-time communication with vehicles and other devices. Also, roadway improvement programs could be modified to help fund complete street projects that help improve safety and quality of life.

The process to define which programs to retain or revamp is envisioned to begin following the completion of the LRTP. This could be a comprehensive effort that would require a significant level of engagement by the Board, members of the public, and stakeholders. For the purposes of this LRTP, it is assumed that most programs would continue at the current scale. One exception is that Metrolink service is assumed to expand beyond the 55-weekday trains operated in 2019 to 86-weekday trains by 2045. This is dependent on Metrolink successfully implementing the capacity and operational improvements included in the Southern California Optimized Rail Expansion program. It should also be noted that some of the Paths to Success below include elements that could complement and potentially be folded into some of these programs through the revamping process noted above.

2. Expand Transit Services and Accessibility

The draft 2045 Preferred Plan looks to go beyond the near-term improvements proposed in the Making Better Connections effort by further enhancing bus service (increasing revenue vehicle hours by 18 percent and expanding the types of service available to the public. These enhancements reflect plans developed as part of the 2018 OC Transit Vision, which primarily includes expanding the number of corridors served by OCTA's Bravo! rapid bus service in the core of the county. In addition, new freeway bus rapid transit services would be added along the I-5 and SR-55 corridors.

The OC Transit Vision also recommends considering high-capacity transit services, such as bus rapid transit or streetcar along corridors with high demand. In addition, the draft 2045 Preferred Plan includes expansion of on-demand microtransit service within certain portions of the county. This could be in the form of additional OC Flex service or partnerships with transportation network companies, which provide subsidies for users of the service within a defined area.

The draft 2045 Preferred Plan also considers strategies that are gaining momentum at the state level and in other parts of the country related to removing cost burdens for transit riders as well reducing barriers to use transit through unified fare systems. Therefore, the LRTP includes a concept to significantly reduce or remove transit fares. This assumption is dependent on increased operational revenues from state and federal sources, and it would require plans and procedures that preserve or enhance the quality of the transit experience.

3. Enhance Active Transportation

To support and encourage more active transportation in Orange County, the draft 2045 Preferred Plan includes implementation of additional planned bikeways identified in OC Active. These planned facilities will help make active transportation a safer and more attractive choice for Orange County travelers. The relationships with local jurisdictions are critical for advancing the planning and implementation of these regional and local active transportation facilities. While OCTA often takes the lead on planning regional facilities, like the OC Loop, it takes working with local jurisdictions to form consensus and advance the plans to implementation.

Additionally, the draft 2045 Preferred Plan supports exploring opportunities to expand active transportation facilities on strategic segments of the Master Plan of Arterial Highways (MPAH). An initial analysis identified approximately 60 miles of the MPAH where there appeared to be enough available opportunity to repurpose a vehicle lane for a bikeway. It is anticipated that the Short-term Action Plan within the LRTP will recommend exploring these types of opportunities further with local jurisdictions.

4. Explore Mobility Integration

The draft 2045 Preferred Plan includes a strategy for mobility integration to improve access to mobility options and reduce barriers that detract from transit ridership. This is accomplished through a concept that proposes a network of mobility hubs at major transit stops and stations, and at employment and activity areas throughout the county.

Mobility hubs provide a menu of services at a single location to support travel needs within a local area. Common features include connections to regional and local transit services, wayfinding information, rideshare services, and micromobility options. Micromobility consists of services like bike share and shared E-scooters that make it easier for travelers to access the mobility hub or to arrive at their destination. The services available at mobility hubs can also be supported by the concept of Mobility as a Service, or MaaS. Trip planning, real-time travel information, payment for transit, micromobility, or rideshare services can all be consolidated within a single MaaS application that is accessible through a smart device or kiosk. These strategies are intended to work together to provide easier and more equitable mobility alternatives to solo driving options for Orange County travelers.

5. Eliminate Select Freeway Chokepoints

While opportunities to add significant capacity to freeways are diminishing, a study is underway to identify opportunities where improvements can be made with minimal right-of-way requirements to enhance the safety and efficiency of the freeway system. These improvements may include additional auxiliary lanes and braided ramps that help to reduce weaving and other merge conflicts. There may also be opportunities to eliminate lane drops by filling short gaps between ramps. Recommendations from the ongoing study are anticipated to be incorporated into the LRTP.

Technology can also play a role. System management tools are continuing to advance, which creates opportunities for less capital-intensive treatments that can enhance the safety and efficiency of the freeway system. These treatments may include variable speed limits, shoulder-running lanes, and changeable message signs. These system management strategies are proposed to be monitored and further considered in future planning efforts as the technology and state and federal policies evolve.

6. Embrace Technology

Over the past decade, technology has made significant impacts on travel. From trip planning applications with real-time traffic information to the rise of transportation network companies to electric bicycles (E-bikes) and cloud-based networks making remote work a possibility for many. Based on these experiences, the ability to forecast the impacts of technology for 2045 in 2022 is limited. However, planning for flexibility and monitoring developing technologies can allow opportunities to be leveraged when they come along.

There are several technologies that are currently being monitored or studied that may provide opportunities to enhance Orange County's transportation system. Currently, OCTA considers these future possibilities as part of current projects, such as installation of upgraded traffic signal controllers as part of the ongoing signal synchronization program. These controllers can be utilized to support elements of connected vehicle technology driving as such vehicles enter the market. Tracked trends and technologies include, but are not limited to:

- Remote work trends,
- E-bikes, E-scooters, and neighborhood electric vehicles,
- Advanced signal synchronization,
- Connected vehicles, and .
- Electric vehicle charging infrastructure needs.

The trends or technologies noted above are anticipated to be discussed within the draft LRTP and, where feasible, they are reflected in the draft 2045 Preferred Plan modeling analysis. Beyond these, there are also emerging technologies being studied and developed that will also be included for discussion within the LRTP. These may include concepts like fully autonomous vehicles, hyperloop concepts, and urban air taxi services that could develop into new travel options or could lead to other transportation breakthroughs that have not yet been imagined.

7. Elevate System Maintenance and Resilience Priorities

Many of the technologies noted above provide zero-emission transportation options, which are becoming more necessary as wildfires, extreme heat, flooding, and coastal erosion are becoming more frequent threats to travelers and transportation infrastructure. Putting climate-related risks aside, regular maintenance of the transportation system can be challenging and costly on its own. Fortunately, the voter approved M2 sales tax provides funding to local jurisdictions to help offset investments in pavement maintenance. Currently, Orange County has the best pavement quality in the state. One reason for this is because M2 not only provides supplemental funding for this purpose, but it has also encouraged local agencies to make protecting road investments a top priority. Additionally, the M2 Freeway program helps maintain freeway infrastructure when and where projects are implemented. Consistent with the past practice, the draft 2045 Preferred Plan continues to prioritize maintaining and protecting past and future infrastructure investments.

With respect to transit operations, and in addition of expanded service levels, the draft 2045 Preferred Plan reflects OCTA's planned transition to a fully electric bus fleet by 2040 consistent with state requirements.

Finally, it is anticipated that the LRTP will recommend regular transportation system assessments to identify proactive steps necessary for adapting to the changing environment and protecting the traveling public, infrastructure investments, and quality of life in Orange County.

Model Results

Initial model results for the 2019 Base Year, 2045 No-Build scenario, and the draft 2045 Preferred Plan scenario are presented in the following table.

	2019 Base Year	2045 No-Build	Draft 2045 Preferred Plan
Daily Transit Trips	131,000	138,000	185,000
Total Vehicle Hours of Delay	341,000	454,000	316,000
Delay as Percent of Travel Time	15%	18%	14%
Daily Vehicle Miles Traveled (VMT)	76,400,000	81,900,000 (7% increase vs 2019)	82,100,000 (7% increase vs 2019)
Average Speed – Freeways – Peak Period	41	40	42
Average Speed – Arterials – Peak Period	26	25	27

The 2045 No-Build scenario, referenced in the above table, assumes no changes to the 2019 transportation system in Orange County, but it does account for the projected growth of population, housing, and employment through 2045, based on the 2018 Orange County projections developed by the CDR.

In summary, the benefits of the draft 2045 Preferred Plan scenario over the 2045 No-Build scenario are highlighted by higher daily transit trips, lower total vehicle delay, lower delay as a percent of travel time, and better average freeway and arterial speeds during the peak period. The minor (0.3 percent) increase in daily VMT is due to planned capacity improvements on freeways and arterials that had been in place prior to more recent state guidelines. Given the minor change in VMT, it is evident that the strategies included in the Paths to Success are effective and responsive to the realities of how to manage a built-out system and maintain our quality of life.

It is estimated that the Paths to Success provide the equivalent congestion reduction of adding over 100 freeway lane miles but without any physical construction nor the related impacts. This results in some metrics outperforming 2019 Base Year conditions despite growth in population, housing, and employment. This comparison and the metrics presented above highlight how the Paths to Success contribute toward the goal to improve system performance.

It is important to note that the Paths to Success were able to contribute to this goal by also addressing the goal to expand system choices through investments in transit, active transportation, technology, and innovative concepts like mobility hubs. Finally, the commitment to maintaining investments made in Orange County's infrastructure, taking actions to reduce climate-related risks, and investing in zero-emission solutions, the Paths to Success also contribute toward the goal to support sustainability. Taken together, the Paths to Success chart a course that allows the Orange County transportation system to provide all travelers with accessible, safe, and reliable mobility options.

Short-Term Action Plan

While credible resources and methods were used to model 2045 conditions with the Paths to Success, additional studies are required to better understand the efficacy and specifics for implementation of the strategies. This highlights the potential for some strategies to meet or outperform current assumptions, while others may fall short. By including a variety of strategies in the LRTP that contribute to similar goals, options are maintained to evaluate specific applications in Orange County and advance the strategies that work best.

With this in mind, an initial listing of planning efforts for inclusion in the LRTP Short-Term Action Plan is presented in Attachment D. The Short-Term Action Plan is intended to advance the Paths to Success and address additional planning needs anticipated over the coming four years that will inform the next iteration of the LRTP. These will likely be refined through feedback received from the Board on this item and through input received during the upcoming public review period.

Another key element of the Short-Term Action Plan is to coordinate with partner agencies on regional transportation plans. This includes working closely with the Los Angeles County Metropolitan Transportation Authority to coordinate plans for the 2028 Olympics. This also includes collaboration with SCAG to ensure that OCTA's plans are accurately reflected in the 2024 RTP/SCS. Additionally, OCTA will continue to coordinate with other regional partners to develop unified message positions on regional planning policies and strategies, as well as on relevant legislative proposals.

Community Engagement

During fall 2021, OCTA began the first phase of public outreach to help identify transportation options, priorities, and challenges for 2045. The goal was to actively engage the community through an online survey, public webinar, community leaders' roundtables, telephone helpline, print and online resources, and digital media. Due to the coronavirus (COVID-19) pandemic, the LRTP team primarily utilized digital tools, such as E-blasts, texts, and social media messaging to promote the survey and virtual community meetings to abide by

COVID-19 health and safety protocols. More than 1,800 online surveys were collected, and the full survey analysis report can be viewed in Attachment E.

To align with OCTA's diversity, equity and inclusion goals, methods were used to ensure all voices had the opportunity to be heard, regardless of ethnicity, language preference, or socioeconomic background. The survey and project collateral, such as fact sheets, E-blasts, and text messaging were made available in English, Spanish, and Vietnamese. Newspaper, Facebook, and radio advertisements were placed to connect with the Spanish and Vietnamese language communities. A telephone helpline offered in English and Spanish provided an alternative for commenting by telephone, and print versions of the survey were also available. Closed captioning and interpretation were made available during the community meeting. A video recording of the webinar also was posted online and made available for the public to view at any time. Finally, community and pop-up events were held to promote the survey in cities with the highest populations of residents with English as a second language to help reduce barriers to engagement.

In addition, two Community Leader Roundtables were held. These included participation by representatives from: Asian Pacific Islander Community Council, CSUF, Orange County Hispanic Chamber of Commerce, Orange County Human Relations Council, Orange County United Way, Santa Ana College, Friends of Harbors, Beaches, and Parks. The LRTP team also regularly conducts facilitated discussions with OCTA's Citizens Advisory Committee and Diverse Community Leaders Group. Finally, the LRTP team engaged Planning and Public Works Directors at a Transportation Planning Forum in July and met with local elected officials at an LRTP Roundtable in September to gather local insights and perspectives related to the LRTP. The input from these events will be considered in the development of the draft LRTP.

Next Steps

An initial LRTP project list for input into the RTP/SCS will be submitted to SCAG in early November that is consistent with the attached model list, and staff will incorporate input received from this workshop as directed. Additionally, the draft LRTP document will be completed in November. The draft LRTP will reflect the material covered in this and previous LRTP items presented to the Board, and it will reflect feedback received from the Board and other stakeholders. Once completed, a 45-day public review period will be initiated following the Thanksgiving holiday. A status report on the public review process will be provided to the Board in January 2023. It is expected that the draft final LRTP will come before the Board in March 2023, after reviewing and responding to feedback received during the public review.

Summary

The LRTP is being updated to respond to public input and several factors that are anticipated to have long-term transportation impacts. To effectively respond to public input and the identified factors, including the sunset of the M2 sales tax in 2041, seven Paths to Success were presented to the Board in July 2022. The Paths to Success outline the approach used to develop and model a draft 2045 Preferred Plan. The results indicate that the strategies associated with the Paths to Success do well to address the LRTP goals. However, more work is needed to develop and better understand the efficacy of the proposed strategies. Therefore, a draft Short-Term Action Plan has been developed that highlights the next steps that could be taken to advance the Paths to Success and inform the next iteration of the LRTP. Input received from the Board will be incorporated into the draft LRTP that will be released for public review starting November 28, 2022 through January 23, 2023.

Attachments

- A. Draft 2045 Preferred Plan Modeled Projects
- B. Recommended Express Lanes Network Phasing
- C. Orange County Transportation Authority, Express Lanes Network Study Summary Report, December 2020
- D. Draft Long-Range Transportation Plan Short-Term Action Plan
- E. Directions 2045, Long Range Transportation Plan, Survey Analysis Report, April 2022

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ATTACHMENT A

System	Route	Description	From	То
Local Highway		Buildout Master Plan of Arterial Highways		
Local Highway		Signal synchronization		
Local Highway		Enhanced signal synchronization and integration with connected vehicles		
State Highway	I-5	Project A: Add one managed lane in each direction	SR-55	SR-57
State Highway	I-5	Project B: Add one general purpose lane in each direction from I-405 to Yale Avenue; add one general purpose lane in each direction from Yale Avenue to SR-55; improve merging	I-405	SR-55
State Highway	I-5	Project C: Add one managed lane in each direction; add auxiliary lanes as needed	Alicia Parkway	El Toro Road
State Highway	I-5	Projects C/D: Add one general purpose lane in each direction, plus auxiliary lanes as needed and improve Avery Parkway interchange	SR-73	Oso Parkway
State Highway	I-5	Project C/D: Add one general purpose in each direction, plus auxiliary lanes as needed and improve La Paz Road interchange	Oso Parkway	Alicia Parkway
State Highway	I-5	Project D: Improve access and merging in the vicinity of EI Toro Road	El Toro Road	
State Highway	I-5	Add one managed lane in each direction	Avenida Pico	San Diego County Line
State Highway	I-5	Add southbound managed lane on-ramp and northbound managed lane off-ramp	Barranca Parkway	I-5
State Highway	I-5	Add one managed lane in each direction	SR-57	SR-91
State Highway	SR-22	Improve operations and merging in vicinity of I-5/SR-57 interchange	I-5/SR-57	
State Highway	SR-55	Project F: Add one general purpose lane and one managed lane in each direction and fix chokepoints; add auxiliary lanes between select on/off ramps and other operational improvements through project limits	I-405	I-5
State Highway	SR-55	Project F: Add one general purpose lane in each direction and fix chokepoints from I-5 to SR-22; and other operational improvements throughout project limits	I-5	SR-91
State Highway	SR-57	Project G: Add one northbound general purpose lane	Orangewood Avenue	Katella Avenue
State Highway	SR-57	Improve SR-57/Lambert Road interchange	Lambert Road	
State Highway	SR-57	Project G: Add one northbound truck climbing lane	Lambert Road	Los Angeles County Line
State Highway	SR-73	Add one managed lane in each direction	I-405	MacArthur Boulevard
State Highway	SR-73	Add one toll lane in each direction	SR 133	Newport Coast Drive

Draft 2045 Preferred Plan - Modeled Projects

Draft 2045 Preferred Plan - Modeled Projects

System	Route	Description	From	То
State Highway	SR-91	Project I: Add one eastbound general purpose lane from La Palma Avenue to SR-55; add one westbound general purpose lane from La Palma Avenue to Acacia Street; improve operations from Lakeview Avenue to Raymond Avenue	Raymond Avenue	Lakeview Avenue
State Highway	SR-91	Project J: Add one eastbound general purpose lane; Add one westbound general purpose lane from Green River Road to SR-241	SR-241	SR-71
State Highway	SR-91	Add overcrossing and SR-91/Fairmont Boulevard interchange	Fairmont Boulevard	SR-91
State Highway	SR-91	Add Express Lane Connector at SR-91/SR-241	SR-241	
State Highway	SR-241	Add overcrossing and SR-241/Oso Parkway/ Los Patrones Parkway interchange	Oso Parkway	SR-241/ Los Patrones Parkway
State Highway	SR-241	Add one toll lane in each direction	SR-133	North of SR-261 Junction
State Highway	I-405	Add one express lane in each direction and convert the existing managed lane to an express lane Project K: Add one general purpose lane in each direction and improve operations	SR-605	SR-55
State Highway	I-405	Project L: Add one general purpose lane in each direction and add one southbound auxiliary lane from SR-133 to Irvine Center Drive	I-5	SR-55
State Highway	I-405	Add auxiliary lanes – University Drive to Sand Canyon Avenue and Sand Canyon Avenue to SR-133	University Drive	SR-133
State Highway	I-605	Project M: Improve I-605/Katella Avenue interchange	Katella Avenue	
State Highway		 Chokepoint relief projects – currently assumed locations: I-405 northbound at Jeffrey Road SR-55 southbound at Lincoln Avenue SR-57 southbound at Ball Road SR-91 eastbound at SR-241 SR-91 westbound at SR-241 I-5 southbound south of SR-133 		
State Highway		Conversion of carpool lanes to tolled Express Lanes by 2045 (Caltrans initiative) - tolled access to lanes except for vehicles with three or more persons		
Transit		Project S: OC Streetcar	SARTC	Harbor Boulevard/ Westminster Avenue

Draft 2045 Preferred Plan - Modeled Projects

System	Route	Description	From	То
Transit		 OC Bus and OC ACCESS - 1.926 million revenue vehicle hours – includes: Building Better Connections Main Street BRAVO! Expanded Main Street BRAVO! Expanded Beach Boulevard BRAVO! Lincoln Avenue/La Palma Avenue BRAVO! Chapman Avenue BRAVO! McFadden Boulevard/Bolsa Avenue BRAVO! Westminster Avenue/17th Street/ Bristol Street high-capacity transit Bristol Street/State College Boulevard high-capacity transit South Harbor Boulevard high-capacity transit North Harbor Boulevard high-capacity transit I-5 BRT SR-55 BRT 		
Transit		Reduced or fare free transit service		
Transit		Expanded microtransit service (e.g., OC Flex)		
Transit		Expanded Metrolink Operations - 86 weekday trains		
Transit		Placentia Metrolink Station		
TDM/TSM		Active Transportation Network Buildout		
TDM/TSM		Mobility Hubs Network		
TDM/TSM		Remote Work Incentive Program		

<u>Acronyms</u>

Caltrans – California Department of Transportation BRT – Bus Rapid Transit SARTC – Santa Ana Regional Transportation Center TDM/TSM – Transportation Demand Management and Transportation System Management I-5 – Interstate 5 I-405 – Interstate 405 I-605 – Interstate 605 SR-22 – State Route 22 SR-55 – State Route 55 SR-57 – State Route 57 SR-71 – State Route 71 SR-73 – State Route 73 SR-91 – State Route 91 SR-133 – State Route 133 SR-241 – State Route 241 SR-261 – State Route 261

ATTACHMENT B

Recommended Express Lane Network Phasing



Orange County Transportation Authority

OCTA

EXPRESS LANES NETWORK STUDY

Summary Report December 2020

> PREPARED BY HNTB



Introduction

This report summarizes key findings and recommendations from the Express Lanes Network Study (Study) conducted by HNTB for the Orange County Transportation Authority (OCTA).

The OCTA 2018 Long-Range Transportation Plan Short-Term Action Plan recommended an Express Lanes Network Study to identify planning and policy positions in response to an initiative by the California Department of Transportation (Caltrans) District 12 to implement express lanes in Orange County. Caltrans and other practitioners, such as the Southern California Association of Governments, have increasingly considered conversion of (HOV) facilities to tolled express lanes as a potential solution for addressing federal performance standards. Federal law considers an HOV facility to be degraded if the average traffic speed during the morning or evening weekday peak commute hour is less than 45 miles per hour (mph) for more than 10 percent of the time over a consecutive 180-day period. Tolled express lanes allow vehicles with three or more persons to use the express lanes for free. Remaining express lane capacity is then offered to non-HOVs through a price-managed system that ensures reliable travel speeds.

The purpose of this Study is to identify OCTA's preferred phasing priorities for future tolled express lanes implementation and to serve as a resource for the regional development of Orange County's tolled express lanes network. The project team employed an interactive and collaborative process during a one-year study that included interdivisional workshops with OCTA staff and a series of stakeholder interviews. In addition, the team prepared detailed technical memorandums on mobility metrics, traffic and revenue analysis, financial feasibility and evaluation criteria, all of which are available under separate cover. These technical memorandums analyzed five network Concepts to ultimately identify and recommend a Phase 1 Express Lanes Network (P1-ELN) that could potentially be implemented by 2030.

It should be noted that the mobility and financial analysis conducted for this evaluation was performed prior to the COVID-19 pandemic. The underlying traffic volumes utilize historic traffic at 2019 levels and do not account for any shifts in commuter patterns and traffic decreases as a result of COVID-19. Based on recent research studies conducted to understand the short-term and long-term effects of the COVID-19 pandemic on traffic, it is expected that in the long-term the traffic congestion is expected to return to pre-COVID-19 levels. Future analysis is required to understand and forecast traffic volumes and patterns as the economy recovers from current pandemic.





Goals and Objectives

OCTA defined goals and objectives, shown in **Table 1**, to help identify facilities that may be appropriate for the OCTA Board of Directors to consider operating as tolled express lanes. The goals and objectives were considered in this Study and will be considered in potential subsequent express lane studies.

Table	1	- Goals	and	Objectives
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GOAL	OBJECTIVE
1. Identify opportunity corridors	 Identify high-demand commute sheds Identify available capacity Leverage existing and planned express lanes Consider useful life of local tax measure projects
2. Improve corridor operations and reliability	 Reduce corridor daily delay from congestion Improve mainline peak period speeds Maintain free-flow speeds in express lanes Identify benefits to adjacent facilities
3. Ensure financial feasibility and corridor maintenance	 Demonstrate that revenues cover annual debt payments, financing requirements, and operations and maintenance costs Identify potential for excess revenues (subsequent studies to determine strategies for reinvestment in the transportation system)
4. Support local and regional goals	 Support community and economic development goals Address social equity/environmental justice Improve air quality and reduce greenhouse gas emissions

Recommended Phase 1 Express Lanes Network (P1-ELN)

The P1-ELN includes the following segments, as illustrated in Figure 1:

- Interstate 5 (I-5) from State Route 57 (SR-57) to LA County Line HOT 3+
- SR-57 from I-5 to LA County Line HOT 3+
- State Route 91 (SR-91) from State Route 55 (SR-55) to LA County Line HOT 3+ (extension of existing 18-mile 91 Express Lanes that exist between SR-55/SR-91 interchange and the SR-91/Interstate 15 interchange)

The P1-ELN is the network that best addresses OCTA's goals and objectives for considering conversion to tolled express lanes. The network includes facilities that serve many intercounty commute trips to and from Orange County employers. Additionally, the identified I-5 and SR-91 segments are consistent with the Caltrans 15-year plan¹ and the P1-ELN would provide timely conversions to connect with LA Metro's Tier II plans² for express lanes on I-5, SR-91, and SR-57.

² "Countywide ExpressLanes Strategic Plan" by Los Angeles County Metropolitan Transportation Authority, dated January 2017



¹ "Orange County Managed Lanes Network Study: Summary of Findings and Implementation Plan" by the California Department of Transportation District 12, dated September 2016





Figure 1 - Recommended Express Lanes Network Phasing





Benefits of the Phase 1 Express Lanes Network

While additional analysis is needed to understand how well the P1-ELN addresses the full set of goals and objectives, the following summarizes the benefits of the P1-ELN identified through this Study:

- The P1-ELN provides a high level of mobility benefits and congestion relief, supports local and regional goals, and addresses the most miles of current and anticipated degraded HOV lanes (Goals 1, 2, and 4).
 - The Express Lanes can operate with free-flow speeds the average modeled speed during peak period is 54 miles per hour. This is well above federal performance standards. P1-ELN has the potential to resolve approximately 62 degraded lane miles.
 - Express Lane users would see a travel time savings of approximately 12 minutes on the I-5 segment of the P1-ELN, 17 minutes on SR-57, and 15 minutes on SR-91.
 - Express Lanes allow for users who do not meet the HOV 3+ occupancy requirement to pay a fee to use the Express Lanes. For the P1-ELN corridors, this may increase the general-purpose lanes speeds by an average of 2.5 mph and increase daily person throughput by approximately 30,000.
 - Express Lane users can take advantage of existing infrastructure such as HOV direct connectors on SR-91/I-5 and SR-57/SR-91 and HOV direct access ramps on Grand Avenue, Gene Autry Way, Disneyland Drive, and Disneyland Way. These connections would reduce weaving and could provide additional time savings and improve safety.
 - Because it improves intra and inter-regional mobility and increases efficiency in the movement of people, goods, and services, the P1-ELN supports the local and regional economies and supports improved air quality and the reduction of greenhouse gases.
- Focusing express lanes phasing on intercounty commutes will provide **more reliable access to Orange County jobs**. Approximately 657,000 people commute into Orange County to work each day, compared with 490,000 residents who commute to work outside of Orange County. Commutes into Orange County are projected to increase 25% by 2040.
- Including facilities that also traverse Los Angeles allows OCTA and LA Metro to coordinate the implementation of express lanes on the SR-91, I-5, and SR-57 to provide a seamless user experience. Interagency coordination may allow for conformity in policy and operations, as well as maximum efficiency in project design, construction, and delivery.
- The P1-ELN does not propose near-term conversion of M2 HOV projects to Express Lanes. Considerations to convert such segments should be avoided during the initial 20 years of operation unless the segment becomes degraded and conversion is directed by the OCTA Board of Directors (Goal 1).
- The analysis indicates that the P1-ELN is **financially viable**, meaning that it can cover annual debt payments, financing requirements, and operations and maintenance costs. Furthermore, P1-ELN may produce excess revenues for reinvestment in the transportation system (Goal 3).

Stakeholder Interviews

As part of the study process, OCTA identified and interviewed 10 Orange County thought leaders and stakeholders. The primary objective was to determine reception and support for Express Lanes implementation in Orange County. The key component of outreach was the one-on-one meetings between high-profile thought leaders and the OCTA Chief Executive Officer (CEO) and agency staff. Feedback was also provided by OCTA's Citizens Advisory Committee, which represents local constituencies and community groups and actively participates in helping examine traffic solutions.





Additional planned outreach activities were to take place in spring 2020; however, due to the COVID-19 pandemic, activities such as elected officials and stakeholder workshops were postponed. While the target audience for this conceptual, high-level study focused on thought leaders and stakeholder representatives, the general public is also a vital audience who will be included throughout the public involvement process during future study phases.

The input from all stakeholders has been critical in the study's evaluations. Following is the list of the thought leaders that were interviewed:

- Angels Baseball: President
- AAA: Government Affairs Manager and Transportation Policy and Programs Manager
- Camino Enterprises: President
- Care Ambulance Service: Division Manager and Director of Government Affairs & Business
 Development
- Hop Skip Drive: Vice President of Strategic Development
- The Irvine Company: Vice President of Transportation and Vice President of Government Affairs
- Lynch EMS: CEO
- M2 Environmental Coalition: Lead Representative
- Rancho Mission Viejo: Senior Vice President of Government Relations
- UPS: Vice President of State Government Relations

Below is a summary of key points by industry category from the one-on-one thought leader meetings:

Emergency Services

- Overall goal is to respond to calls as quickly and efficiently as possible
- Heavy traffic is a burden to patients and first responders. Interest in toll and express lanes design and operations for access
- Supportive of express lanes as a more reliable option. Concerns about potential freeway chokepoints being created

Real Estate Development

- OCTA should focus on innovation, technology, and out of the box thinking
- Supportive of the express lanes study
- Cited a need to be transparent and to educate the public; the perception is the roads are already paid for so prepare for concerns

Shipping Industry

- More access points into express lanes is an essential need
- Main goal is efficiency, easy access to freeways from distribution centers, warehouses, and shipping hubs, and from freeways into express lanes
- Supportive of toll lanes but only if no regular lanes are lost in the process

Demand Transportation Services

 Strategic messaging and public education/involvement will be important in express lanes development





- Open to the idea of transforming HOV lanes into express lanes but not by removing regular lanes
- Concerns about cost of implementing toll roads, tolls themselves, and availability of access points

Entertainment/Sports

- Sporting events often take place at times when fans who wish to attend games are traveling during peak traffic hours
- Willingness to coordinate with OCTA on public service messaging and provide data on traffic flow into and out of Anaheim
- Supportive of continuing open dialogue with OCTA as plans and development around Platinum Triangle unfold

Environmental Community

- Would like to see more transportation options in Orange County, similar to the Bay Area, including elevated transit on freeways to improve mobility
- Stressed the importance of private sector partnerships, especially with land use entities and collaboration with local communities
- Not opposed to use of carpool lanes as HOT lanes to promote efficiency, but environmental justice issues could arise from permitting solo drivers to use HOV lanes for a fee

Conclusion and Next Steps

The Phase 1 Express Lanes Network (P1-ELN) is intended to support coordination efforts with Caltrans and LA Metro on their ongoing express lane activities and to put OCTA in position to advance express lanes in Orange County, if so desired. The P1-ELN was selected because it supports OCTA's express lanes goals and demonstrates merits for enhancing mobility, achieving financial viability, utilizing existing managed lane connectors and ramps, increasing opportunities for coordination, and minimizing conflicts with M2 funded projects.

While the level of analysis conducted for the Express Lanes Network Study may be sufficient to recommend proceeding to the next steps in the process, it does not represent a commitment to implementing any express lanes. From an agency policy standpoint, the OCTA Board of Directors will need to weigh-in on whether OCTA should proceed on to the next step, which includes additional analysis. Ultimately, the Board would need to approve implementation of any specific project or projects. In addition, since Caltrans is the owner and operator of the state highway system (SHS), Caltrans must approve any projects proposed on the SHS.

The next step would be to develop a Project Initiation Document (PID) for one or more of the P1-ELN facilities. The PID will define a purpose and need statement, develop and analyze a range of viable alternatives, and estimate the level of effort necessary to proceed to the Project Approval and Environmental Document (PA/ED) phase. The alternatives analysis prepared as part of the PID process will provide a cost range for various alternatives analyzed, initial design configurations, and financial performance. Alternatives that meet the purpose and need of the project would be recommended for more detailed study through the PA/ED phase. The PA/ED phase will include more robust stakeholders' involvement and transparency prior to a preferred alternative recommendation. If a locally preferred alternative is approved by the OCTA Board of Directors and concurred to by Caltrans, OCTA can then seek legislative action for tolling authority from the State prior to initiating design and construction. Traffic and revenue studies will be undertaken to determine the viability of the alternatives analyzed. The traffic and revenue studies may also be used to seek external funding sources.



Draft Long-Range Transportation Plan Short-Term Action Plan

Activity	Description			
Drange County Planning Activities				
Coordination with Local Partner Agencies	Continue dialogue with local jurisdictions – the California Department of Transportation (Caltrans) District 12, Transportation Corridor Agencies (TCA), local transit operators, and other local agencies as needed to further intra-county connectivity.			
Long-Term Transportation Funding Strategy	Develop and recommend strategies for securing funds for addressing transportation needs beyond the sunset of Measure M2.			
Corridor Studies and Improvements	Conduct studies evaluating the feasibility of multimodal corridor enhancements.			
OC Transit Vision Update	Update the long-term transit vision for Orange County by revisiting the recommendations from the 2018 OC Transit Vision.			
Transit Support Services	Establish a long-term plan for Orange County transit supportive services, such as OC Flex, vanpools, and park-and-rides.			
OC Metrolink Vision	Develop a vision for long-term Metrolink operations that meet Orange County's commuter rail needs.			
Managed Lane Studies	Coordinate with Caltrans District 12 on the Interstate 5 (I-5) Managed Lanes Project and explore operational enhancements to the high-occupancy vehicle network and potential expansion of priced managed lanes on State Route 91 and State Route 57.			
Future of the Toll Roads	Coordinate with Caltrans District 12 and TCA to plan for toll road improvements and operational approaches related to the state assuming full control of the facilities.			
Freeway Chokepoints	Advance long-term freeway chokepoint projects to improve safety and system efficiency.			
Signal Synchronization	Support local initiatives to maintain signal synchronization corridors countywide and study opportunities for advanced technologies.			
Transportation Demand Management (TDM)	Study opportunities for new or expanded TDM projects.			
Mobility Hubs	Develop a mobility hubs implementation strategy that outlines the conceptual operations for a future pilot project.			
Active Transportation Investments	Continue evaluating Orange County's Active Transportation needs, develop long-term plans, and implement programs that address data collection, data management, and safety education.			
Complete Streets	Analyze the Master Plan of Arterial Highways for opportunities to reallocate excess capacity in support of active transportation and transit.			
Sustainable Transportation Strategies	Study potential for a mitigation program designed to offset vehicle miles traveled induced by transportation and land-use projects within Orange County.			

Draft Long-Range Transportation Plan Short-Term Action Plan

Activity	Description		
Drange County Planning Activities (continued)			
Electric Vehicle Charging Infrastructure	Develop a strategy for Orange County's electric vehicle charging infrastructure to ensure equitable and affordable access as the electric vehicle fleet rapidly grows.		
Joint Development Studies	Evaluate opportunities for joint developments at the Orange County Transportation Authority (OCTA) transit terminals to improve transit facilities and connectivity with employment/housing.		
Asset Management	Monitor maintenance needs for existing and new facilities and equipment. Update fleet plans to address zero-emission bus requirements.		
Adaptation Planning	Study infrastructure needs and develop recommendations.		
Traffic Model Update	Update Orange County Traffic Analysis Model to incorporate latest socioeconomic data.		
Regional Planning Activities			
Coordination with Regional Partner Agencies	Continue dialogue with Southern California Association of Governments (SCAG), San Diego Association of Governments , County Transportation Commissions, South Coast Air Quality Management District, Caltrans, and other regional agencies as needed to further inter-county connectivity.		
Trade Corridors/Goods Movement	Coordinate primarily through SCAG and the Los Angeles County Metropolitan Transportation Authority (LA Metro) to plan for projected growth in regional goods movement.		
2024 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)	Participate in the development of the 2024 RTP/SCS and initiate dialogue with SCAG and local jurisdictions.		
2028 Olympics	Coordinate with LA Metro on preparations for the 2028 Olympics.		
Metro Countywide Express Lanes Strategic Plan	Continue dialogue with LA Metro and appropriate agencies to identify impacts to, and opportunities for, connectivity with Orange County's transportation network.		
San Diego's I-5 High-Occupancy Toll Lane Project	Continue dialogue with San Diego Association of Governments and appropriate agencies to identify impacts to, and opportunities for, connectivity with Orange County's transportation network.		
West Santa Ana Branch/ Pacific Electric Right-of-Way	Continue dialogue with LA Metro and appropriate agencies to identify impacts to, and opportunities for, connectivity with Orange County's transportation network.		
Gold Line Eastern Extension – Phase 2	Continue dialogue with LA Metro and appropriate agencies to identify impacts to, and opportunities for, connectivity with Orange County's transportation network.		

Draft Long-Range Transportation Plan Short-Term Action Plan

Activity	Description
Emerging Issues	
Monitor Technology	Monitor developing technologies and their potential impacts on transportation (e.g., autonomous and connected vehicles, remote work trends, vertiports and air taxis, etc.).
Connected Infrastructure Needs Assessment	Study infrastructure needs and identify opportunities to implement and/or complement emerging transportation technologies.
State and Federal Regulation	Monitor State and federal legislation/regulations/policies.
State and Federal Funding	Identify strategies and opportunities to access and leverage state and federal funding.
Transportation Outreach an	d Education
Active Transportation Safety	Seek opportunities to enhance public outreach and education related to active transportation safety.
Transit Use and Trip Planning	Explore new approaches to increase use of modes other than single- occupant vehicles, including enhanced transit and active transportation facilities, public education, and incentives.
Diversity, Equity, and Inclusion	Provide all members of the public equal opportunities to provide input into OCTA planning efforts and refine methods for incorporating equity in the planning process.



Survey Analysis Report

April 2022

- Prepared for: Orange County Transportation Authority 550 South Main Street Orange, CA 92868
- Prepared by: Arellano Associates 5851 Pine Avenue, Suite A Chino Hills, CA 91709



Directions 2045 Long Range Transportation Plan Survey Analysis Report, April 2022

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I. EXECUTIVE SUMMARY

The Orange County Transportation Authority (OCTA) is updating the Long Range Transportation Plan (LRTP) to define a vision for Orange County that aims to address future mobility needs. The LRTP is developed every four years to reflect current OCTA policies and commitments, transportation study findings and input from local jurisdictions, business leaders, community leaders, county residents and transportation planning professionals. To assist with the understanding of existing conditions and community needs, an online survey was created and implemented to gather public input and identify new transportation initiatives and priorities which will shape the LRTP.

The survey research was qualitative, which means that results cannot be considered representative of the total population of interest. Informal research methods are useful to explore a group's opinions and views, allowing for the collection of verifiable data. This data can reveal information that may warrant further study and is often a cornerstone for generating new ideas.

i. Community Engagement Approach

A robust outreach strategy was developed to invite key stakeholders and those that live, work and travel through Orange County to learn more about the LRTP and provide feedback by completing the online survey. The strategy's goal was to actively engage the community through an online survey, public webinar, community leaders roundtables, telephone helpline, and print and online resources and media.

Due to the ongoing COVID-19 pandemic, the LRTP team primarily utilized digital tools, such as eblasts, texts, geofencing, and social media messaging, to promote the survey, virtual community meetings and other outreach opportunities in order to abide by current COVID-19 health and safety protocols and guidance.

ii. Diversity Outreach

To align with OCTA's diversity, equity and inclusion goals, outreach methods were created and implemented with a diverse audience in mind to engage hard to reach segments of the community and ensure all voices had the opportunity to be heard, regardless of ethnicity, language preference or socioeconomic background. The survey and project collateral and notification materials for the survey, such as fact sheets, eblasts and text messaging were made available in English, Spanish and Vietnamese, and a number of advertisements were placed to connect with the Spanish and Vietnamese language communities, namely print newspaper ads, Facebook ads, as well as Vietnamese radio ads. A bilingual project telephone helpline was also established, which provided an essential alternative for those interested in requesting print versions of the survey, wishing to comment by phone, or engaging by means other than the internet. Closed captioning and interpretation were also made available during the community meeting. A video recording of the webinar was posted online, so it was available for the public to view at any time.

In addition, the LRTP team regularly presented and received input from OCTA's Citizens Advisory Committee and Diverse Community Leaders Group. The team also formed a new group and held two Community Leader Roundtables to extend the reach of project engagement. These meetings invited more than 100 leaders from diverse groups with focus on environmental justice, sustainability, local empowerment, cultural resources, healthcare and other areas of interest. Of those invited, 19 community leaders attended and included representatives from: OC United Way, OC Human Relations Council, OC Hispanic Chamber of Commerce, Asian Pacific Islander Community Council, Friends of Harbors, Beaches and Parks, and representatives from Santa Ana College and CSU, Fullerton.

Finally, community and pop-up events were primarily identified and held to promote the survey in cities with the greatest need for additional engagement, defined by those with the highest populations of English as a second language.

iii. Survey Highlights

Following is a summary of survey highlights.

- The survey was offered in three languages (English, Spanish, and Vietnamese);
- The survey was promoted using a variety of methods including digital, print, SMS/MMS texting, geofencing, and radio advertisements as well as in-person pop-up events;
- 1,825 surveys were collected and analyzed (1,781 English, 43 Spanish and 1 Vietnamese);
- A vanity URL (*LRTP-survey.com*) was created for easy online access;
- The survey was made available in print version with pre-paid postage for those who may not be connected to the internet and was also accessible online;
- The online survey was available to the public from September 28 to October 31, 2021;
- Survey respondents were entered into a drawing for a chance to win one of four \$50 gift cards; and
- 900+ public comments were collected from survey respondents and engaged stakeholders during meetings and events.
iv. Key Findings

The summary of findings below are key highlights identified from survey responses and were prepared for use by the technical team.

Table 1. Key Strategy and Improvement Findings

Survey Question	#1 Choice	#2 Choice
Select your top two strategies to help decrease traffic congestion and reduce how much people need to drive in the future. (Select Top Two)	Encourage policies to allow for employees to work from home at least one day per week, whenever possible 32%	Improve and expand commuter rail services including Metrolink and Amtrak 32%
How important are the following land use strategies in relieving traffic congestion? (5 is very important)	Encourage walkability and complete streets (streets designed for all users like drivers, cyclists, pedestrians) 4.1 rank	Concentrate business development around transit (bus/rail) centers 4.0 rank
Considering public transit in Orange County, what do you think are the main challenges to increasing usage? (Select Top Two)	Lack of service close to my destination 49%	Long travel times 43%
Please rank the following transportation improvements in order of importance (1 is most important)	Bus, streetcar, light rail, shuttle, trolley, vanpool, and other transit services 2.4 rank	Freeway maintenance, on- and off-ramp enhancements, and projects to improve overall traffic flow 2.4 rank

Table 2. Key Mobility Hub Findings

Survey Question	#1 Choice	#2 Choice
Which two services would you like offered at Mobility Hubs? (Select Top Two)	On-demand shuttle services (OCFlex) 65%	Rideshare (Uber/ Lyft) 40%
Where should Mobility Hubs be placed in Orange County? (Select Top Two)	At major visitor destinations (amusement parks, shopping malls, beaches, etc.) 48%	At rail stations/ stops 37%
How important are the following amenities/services for you at Mobility Hubs? (5 is very important)	Security features (cameras, lighting, etc.) 4.7 rank	Bathrooms 4.5 rank

Survey Question		#1 Chc	bice	#2 Choice
What would encourage you to use Mobility Hubs? Is there anything else you would like to share about Mobility Hubs?	Com (orde	mon Themes er of frequency)	#1. Accessib#2. Safety#3. Bus#4. Location#5. Amenitie	ility within the community es

Table 3. Key Demographic Findings

Survey Question	Findings
What is your age range?	Those who were in the 45 to 54 and 55 to 64 age ranges had the highest percentage of survey participation (18% and 24% respectively).
What ethnic group do you consider yourself a part of or feel closest to?	Nearly half of survey respondents (46%) identified as Caucasian/ White. Latino/Hispanic survey respondents followed with 21%.

A multi-page infographic was prepared to visually highlight the LRTP survey results and to spotlight the outreach efforts used to engage the public. The infographic was distributed to all contacts in the LRTP stakeholder database, including survey participants in a thank you e-blast following the close of the survey. These graphic results have been posted to the LRTP webpage for interested parties to view, share or download.





II. SURVEY OVERVIEW

The survey was made available from September 28 to October 31, 2021. The purpose of the survey was to develop community awareness on the LRTP, inform and engage the public on the study, and solicit input to shape the draft plan.

The survey questions were designed to:

- Determine participant's habits, use and conditional strategies for change,
- Rank opportunities for improvement,
- Assess potential mobility hub opportunities, services and locations
- Gather respondent demographics, and
- Collect new contact information.

There was a total of 20 questions, including four (4) optional demographic questions and two (2) optional sign-up questions at the conclusion of the survey.

i. Survey Format & Participation

Broad community participation was essential to the success and value of the survey. For this reason, two (2) survey formats were prepared, an online and a print option. Typeform, an online survey platform, was used and provided a convenient option, allowing stakeholders to take the survey anywhere, anytime via their desktop or mobile devices.

Recognizing that internet access may be limited for some in the community and that some community members prefer providing input in written form, the team prepared the survey as a print version in three languages. The print version was available upon request using the multi-lingual project helpline, which was shared on the website and through various notifications and was offered along with the online version at community events. To encourage return, print surveys included pre-paid postage.

Respondents completed the survey via desktop, mobile phone, tablet and in print. The table below captures a breakdown of the surveys collected by language and submission method*.

Directions 2045 Long Range Transportation Plan Survey Analysis Report, April 2022

Survey	Survey Respondent Input Medium								
Language	Desktop	Mobile	Tablet	Print	All Mediums				
English	953	811	50	30	1,844				
Spanish	4	38	4	7	53				
Vietnamese	0	0	0	1	1				
Total	957	849	54	38	1,898				

The completion rate for each survey language is shown in the table below*.

Survey Language	Views	Starts	Submissions	Completion Rate
English	5,127	2,990	1,844	61.7%
Spanish	237	105	53	50.5%
Vietnamese	124	21	1	9.5%
Total	6,337	3,116	1,899	

* Response rates include survey development and debug efforts and thus totals do not correspond to final survey figures. However, they do provide a general understanding of the level of response through given mediums and provide insight into language participation.

Figure 2: Online Survey Entry Portal



Sustainable, equitable, and innovative transportation solutions.

Welcome to the OCTA Long Range Transportation Plan (LRTP) Community Survey!

Haga clic aquí para español Bấm vào đây để xem tiếng Việt

The LRTP is a blueprint for transportation improvements in Orange County over the next 20+ years. Your input will help to develop a vision for OC's transportation system as well as identify goals and priorities.



ii. Survey Outreach

Multiple outreach methods were utilized to ensure that the greater Orange County community was notified of the survey. These methods consisted of emails, text messaging, social media posts, electronic communication toolkits, and print advertisements. Additionally, several online advertisements, including geofencing, Facebook and radio announcements were used. Notifications were distributed in multiple language formats to maximize the reach of project messaging and support diverse and disadvantaged community engagement. The survey was also promoted during public meetings, key stakeholder engagements and at local community events to further encourage community participation. A quick summary detail of this notification effort is as follows:

- E-mailed 22 project notices to up to 67,000 bus and rail riders, rideshare travelers and project stakeholders
- Advertised in Spanish and Vietnamese print newspapers
- Promoted the project and survey with four (4) Twitter posts, one (1) Instagram Story, six (6) OCTA Facebook posts, and six (6) Facebook ads, and one (1) geofencing ad with 233,000+ views
- Purchased 20 Vietnamese radio spots/advertisements
- Hosted five (5) OCTA committee briefings, two (2) Community Leader Roundtable webinars and one (1) public webinar attracting 46 participants, as well as uploaded the public presentation and online video for those that could not attend
- Developed a SMS/MMS texting campaign that transmitted five (5) messages to nearly 300 interested parties
- An e-communications toolkit was sent to 34 local cities, 124 Community Leader Roundtable Members and 12 OCTA committee/stakeholder organizations
- Announcements through OCTA's On-the Move blog, newsletter and press release
- Materials were shared in English, Spanish and Vietnamese

Directions 2045 Long Range Transportation Plan Survey Analysis Report, April 2022

III. SURVEY RESULTS ANALYSIS

The following section highlights the findings for each survey question.

i. Geographic Distribution

Nearly all survey respondents shared their home zip code (95%; 1,755), with most having stated that they reside within Orange County (70%; 1,231). A respondent distribution map is shown below and identifies the number of responses received by city, for both, incorporated and unincorporated, areas in Orange County, as well as notes the total respondents from outside Orange County (30%; 524).

What is your home zip code?



Figure 3: Survey Infographic Map

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ii. Congestion Challenges & Improvement Strategies

Survey participants were presented five (5) questions to assess what they thought would help decrease traffic congestion as well as identify potential improvement strategies.

Select your top two strategies to help decrease traffic congestion and reduce how much people need to drive in the future. (Select top two)



Responses	Count*
Encourage policies to allow employees to work from home at least one day per week, whenever possible	584
Improve and expand commuter rail services including Metrolink and Amtrak	582
Create a network of light rail streetcars serving key destinations and activity centers	505
Improve and expand bus services	486
Offer transit riders access to shuttles, shared bikes/scooters, and rideshare services at transit stations to get to their final destination (i.e. mobility hubs)	482
Modify streets to safely accommodate all forms of transportation (driving, transit, walking, bicycling, etc.)	375
Encourage carpooling, vanpooling, and ridesharing	347
Improve bike lanes, sidewalks, pedestrian safety, etc.	264

*Based upon 1,813 respondents.

Other ways to encourage people to drive less or use alternative forms of transportation are through pricing or policies. Please indicate which of the following strategies are your top two preferences. (Select top two)





Responses	Count*
Reduce the cost of transit passes and tickets to encourage more transit use	1022
Encourage policies to allow employees to work from home at least one day per week, where possible	989
Incentivize businesses and employees to make greater use of transit, carpooling, and bicycling for their commutes	962
Convert carpool lanes to tolled express lanes that are free for cars with three or more people, and others can pay a toll to access the lanes	414
Require at least three people in a vehicle to qualify for the carpool lane	237

*Based upon 1,812 respondents.

Which transit improvements do you think could help relieve congestion the most in Orange County? (Select top three)



Other provided: A total of 70 survey respondents provided additional responses in the "Other" category. Reducing transit fare, enhancing bus service and adding light rail were mentioned the most suggested transit improvements.

Responses	Count*
Create local community shuttle services that get people to and around major activity centers	1,004
Enhance connections to and from bus stops and rail stations by developing Mobility Hubs (multiple services in one location)	994
Enhance commuter rail services (Metrolink/Amtrak)	826
Provide transit only lanes with high quality services (e.g. light rail or bus rapid transit) to connect activity centers through high traffic areas	736
Enhance local bus service in areas with high ridership potential	734
Add streetcar services in areas with high ridership potential	644
Create on-demand shared ride services (Uber/Lyft/Microtransit)	426
Other	70

*Based upon 1,812 respondents

55%

55%

46%

50%

60%

Considering public transit in Orange County, what do you think are the main challenges to increasing usage? (Select top two)



Other provided: A total of 38 survey respondents identified additional challenges in the "Other option in which a majority mentioned a lack of connectivity and service as main challenges to increasing transit usage.

Responses	Count*
Lack of service close to my home/destination	899
Long travel times	779
Infrequent or unreliable transit services	727
Ensuring safety and security	472
Lack of shuttles, shared bikes/scooters, and rideshare services at transit stations	431
Finding information about transit services	290
Other+	38

*Based upon 1,818 respondents

Directions 2045 Long Range Transportation Plan Survey Analysis Report, April 2022

How important are the following land use strategies in relieving traffic

congestion? (1 = Not important; 5 = Very important)

Results are listed in order of importance.

Land Use Strategies		Count by Rank					Overall	Based
		2	3	4	5	Rank	Rank	Upon
Encourage walkability and complete streets (streets designed for all users like drivers, cyclists, pedestrians)	60	83	276	522	864	4.1	#1	1,805 respondents
Concentrate business development around transit (bus/rail) centers	74	50	395	540	753	4.0	#2	1,812 respondents
Concentrate new housing developments around transit (bus/rail) centers	89	101	448	543	622	3.8	#3	1,803 respondents
Reduce automobile dependency (reduced parking availability, pay-to-park lots)	373	238	469	297	429	3.1	#4	1,806 respondents

Figure 4: SMS/MMS Notice

(English SMS; Spanish and Vietnamese MMS)



iii. Travel Habits & General Transportation Improvements

Three (3) questions were asked to establish a baseline understanding of respondent modes of travel and determine their interests in transportation improvements including the application of technological solutions.

When you travel in, around or through Orange County, how do you usually get from place to place? (Select and rank your top three. 1 = most used; 3 = less used)



Results are listed in order of use.

Made of Travel		unt by Rai	nk	Overall	Based
	1	2	3	Rank	Upon
Drive (car, motorcycle, etc.)	1,224	159	76	#1	1,459 respondents
Walk	113	694	383	#2	1,190 respondents
Bus	156	182	172	#3	510 respondents
Metrolink/Amtrak	88	199	210	#4	497 respondents
Ride-hailing services (Uber/Lyft)	13	162	243	#5	418 respondents
Trollies/shuttles (OC Flex, Irvine iShuttle, etc.)	29	73	311	#6	413 respondents
Bicycle	22	140	191	#7	353 respondents
Access/paratransit service	18	33	49	#8	100 respondents
E-bike/e-scooter	13	34	41	#9	88 respondents

*Based upon 1,676 respondents

OCTA is looking to improve and introduce more technology into transportation. What do you think OCTA should be focused on? (Select top three)



Other provided: A total of 76 survey respondents selected "Other" as part of their top three responses.

Responses	Count*
Smart roadways/intersections (adding sensors to inform drivers of real-time travel conditions)	1,165
Real-time transit apps and information (Moovit, Transit App, etc.)	1,087
Synchronized Traffic Signals	1,052
Teleworking technologies (virtual meeting platforms, broadband, etc.)	684
Rideshare (Uber / Lyft)	449
E-bikes	372
Autonomous Vehicles	318
E-scooters	238
Other	76

*Based upon 1,814 respondents

Please rank the following transportation improvements in order of importance.

(1 = most important; 5 = less important)

Turner estation lunare estat	Count by Rank				Average	Overall		
	1	2	3	4	5	Rank	Rank	
Bus, streetcar, light rail, shuttle, trolley, vanpool, and other transit services	561	373	446	247	84	2.4	#1	
Freeway maintenance, on- and off- ramp enhancements, and projects to improve overall traffic flow	546	473	306	280	106	2.4	#2	
Pothole repairs, signal synchronization, and intersection improvements	337	449	494	309	122	2.7	#3	
Bike lanes, bikeway and sidewalk networks, and pedestrian pathways	177	305	287	678	264	3.3	#4	
Enhanced infrastructure to accommodate autonomous, driverless vehicles	90	111	178	197	1135	4.3	#5	

Results are listed in order of importance.

*Based upon 1,711 respondents

Figure 5: Facebook Advertisement



OCTA wants to hear from you! Help shape the future of OC's transportation system and set a direction forward by taking a short survey at LRTP-Survey.com. Be... See More



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...

iv. Mobility Hub Opportunities

There were four questions included within the survey to help gauge participants' interest and needs relative to the development of future mobility hubs.





Other provided: A total of 54 survey respondents provided additional responses with frequent mentions of electric vehicle charging as a service that they would like to see at future mobility hubs.

Responses	Count*
On-demand shuttle services (OCFlex)	1,181
Rideshare (Uber/Lyft)	728
Carsharing (Zipcar, Getaround)	600
Bike/e-bike share	549
E-scooter share	266
Delivery/parcel lockers	239
Other	54

*Based upon 1,811 respondents

How important are the following amenities/services for you at Mobility Hubs?

(1 = Not important; 5 = Very important)

Count by Rank **Mobility Hub** Average Overall Based Amenities/Services Rank Rank Upon Security features 1,807 25 16 92 285 1,389 4.7 #1 (cameras, lighting, etc.) respondents 1,805 128 336 #2 Bathrooms 43 34 1,264 4.5 respondents 1,801 Seating and open space 25 45 261 596 874 4.2 #3 respondents 1,793 Secure bicycle parking 99 67 270 484 873 4.1 #4 respondents 1,798 Availability of staff at the 42 573 786 #5 63 334 4.1 transit station respondents 1,802 75 396 517 723 4.0 #6 USB charging stations 91 respondents Dining options (food 1,812 609 474 #7 94 117 518 3.7 trucks/carts, vending machines) respondents 1,805 Bicycle repair stand/station 149 150 601 509 396 3.5 #8 respondents 1,802 ATM machines 156 168 651 459 368 3.4 #9 respondents Storage lockers for luggage or 1,807 262 158 611 397 379 3.3 #10 package delivery respondents

Results are listed in order of importance.



Where should Mobility Hubs be placed in Orange County? (Select top two)



Responses	Count*
At major visitor destinations (amusement parks, shopping malls, beaches, etc.)	865
At rail stations/stops	674
Educational facilities (universities, colleges, etc.)	519
At bus stations/stops	481
At neighborhood shopping centers	446
Near residential areas	340
At employment centers	294
Other+	6

*Based upon 1,812 respondents

What would encourage you to use Mobility Hubs? Is there anything else you would like to share about Mobility Hubs?

This open-ended question provided respondents an opportunity to share their unique challenges or solutions for further consideration in the development of Orange County mobility hubs. More than 45% (837) of survey respondents provided input on this question. The most common themes were related to accessibility, safety, bus service, and proposed locations of potential mobility hubs.

DIRECTIONS 2045 Λ [1] [2] [0] [4] [[1] [2] [3] [4] [1] [2] [3] [4] [[1] [2] [3] [4] [5 (1) (2) (3) (4) (5 [1] [2] [3] [4] [5 **BUSINESS REPLY MAIL** ||.|_..|.W.|..W...||4.|..|-||...W...||-||| Visc ant your input! Tak LONG RANGE TRANSPORTATION PLAN sle, and innovative transportation solutions. - E DIRECTIONS 2045 Δ

Figure 6: English Print Survey

v. Demographics

Three (3) demographic questions were included at the conclusion and were optional. This data was only used in the assessment of this survey's findings.



What is your age range?

Response	Count*
16 to 24	82
25 to 34	260
35 to 44	289
45 to 54	337
55 to 64	441
65 to 74	273
75 or older	75
Prefer not to answer	68

*Based upon 1,825 respondents

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Response	Count*
Less than 30,000	304
30,000 to 49,999	235
50,000 to 79,999	266
80,000 to 109,999	234
110,000 to 169,999	276
170,000 or more	179
Prefer not to answer	331

*Based upon 1,825 respondents



What ethnic group do you consider yourself a part of or feel closest to?

Response	Count*
Caucasian/White	838
Latino/Hispanic	378
African American/Black	63
American Indian or Alaskan Native	24
Asian: Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian	246
Pacific Islander	18
Middle Eastern	11
Mixed Heritage	51
Other+	4
Prefer not to answer	192

Taiwan

*Based upon 1,825 respondents

vi. New Contacts

Broadening OCTA's outreach by growing the study contact list of stakeholders and the general public is essential throughout the development of the LRTP. A total of 1,513 new email addresses and 1,147 new mobile phone numbers were collected from survey respondents.

IV. CONCLUSION

This survey input offers insights into the respondents' attitudes and needs when planning for future transportation improvements in Orange County. Survey findings revealed that respondents would like to see strategies to address traffic congestion, public transit needs and general transportation improvements in rail service, reduction in the cost to ride public transit, and improved connectivity to encourage more transit use. Feedback collected during this phase of the study will be essential in shaping the development of the draft LRTP as it evolves to meet Orange County's 2045 transportation needs.

APPENDIX

Appendix A

- Typeform Survey English
- Typeform Survey Spanish
- Typeform Survey Vietnamese



Sustainable, equitable, and innovative transportation solutions.

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<u>Haga clic aquí para español</u> Bấm vào đây để xem tiếng Việt

The LRTP is a blueprint for transportation improvements in Orange County over the next 20+ years. Your input will help to develop a vision for OC's transportation system as well as identify goals and priorities.



1 → Let's make sure you're human! Please select "OCTA", "LRTP" and "Directions 2045" from the list below. Thanks! *

Choose 3
A LRTP
B Bus
C Directions 2045
D Orange County
E Walk
F OCTA
G Rail
H Bike
I Rideshare
J Car

2 → Let's try again! Please select "OCTA", "LRTP" and "Directions 2045" from the list below. Thanks!*

Description (optional)

Choose 3

A LRTP
B Bus
C Directions 2045
D Orange County
E Walk
F OCTA
G Rail
H Bike
I Rideshare
J Car
Add choice

3 > When you travel in, around or through Orange County, how do you usually get from place to place? (Select and rank your top three. 1= most used; 3 = less used)

Drag and drop to rank options

- · · Drive (car, motorcycle, etc.)	::
- • Walk	
Trollies/shuttles (OC Flex, Irvine iShuttle, etc.)	::
- · ACCESS/paratransit service	::
- Y Bicycle	
- × E-bike/e-scooter	::
- 👻 Bus	::
• Metrolink/Amtrak	
- · Ride-hailing services (Uber/Lyft)	

Add choice

4 → Select your top two strategies to help decrease traffic congestion and reduce how much people need to drive in the future. (Select Top Two)

Choose 2

A Encourage carpooling, vanpooling and ridesharing	
B Improve bike lanes, sidewalks, pedestrian safety, etc.	
C Modify streets to safely accommodate all forms of transportation (driving, transit, walking, bicycling, etc.)	
D Create a network of light rail streetcars serving key destinations and activity centers	
E Encourage policies to allow employees to work from home at least one day per week, whenever possible	
F Improve and expand commuter rail services including Metrolink and Amtrak	
G Improve and expand bus services	
U Offer transit riders access to shuttles shared bikes/scooters, and rideshare services at transit	

stations to get to their final destination (i.e. mobility hubs)

Add choice

6 > Which transit improvements do you think could help relieve congestion the most in Orange County? (Select Top Three)

Choose 3

10036 5
A Enhance local bus service in areas with high ridership potential
B Create local community shuttle services that get people to and around major activity centers
C Create on-demand shared ride services (Uber/Lyft/Microtransit)
D Add streetcar services in areas with high ridership potential
E Enhance commuter rail services (Metrolink/Amtrak)
F Provide transit only lanes with high quality services (e.g. light rail or bus rapid transit) to connect activity centers through high traffic areas
Enhance connections to and from bus stops and rail stations by developing Mobility Hubs (multiple services in one location)

H Other

Add choice

5 → Other ways to encourage people to drive less or use alternative forms of transportation are through pricing or policies. Please indicate which of the following strategies are your top two preferences. (Select Top Two)

Choose 2

A Require at least three people in a vehicle to qualify for the carpool lane B Incentivize businesses and employees to make greater use of transit, carpooling, and bicycling for their commutes C Encourage policies to allow employees to work from home at least one day per week, where possible D Convert carpool lanes to tolled express lanes that are free for cars with three or more people, and others can pay a toll to access the lanes E Reduce the cost of transit passes and tickets to encourage more transit use

Add choice

7 → Considering public transit in Orange County, what do you think are the main challenges to increasing usage? (Select Top Two)

Choose 2

- A Infrequent or unreliable transit services
- B Long travel times
- C Lack of service close to my home/destination
- D Ensuring safety and security
- E Lack of shuttles, shared bikes/scooters, and rideshare services at transit stations
- F Finding information about transit services
- G Other

Add choice

8 → How important are the following land use strategies in relieving traffic congestion? (Rate questions 6a through 6d in a scale of 1 to 5)





GROWING TRAVEL DEMAND



8a → Concentrate business development around transit (bus/rail) centers

Description	
Description	

1	2	3	4	5
Not important		Neutral		Very important

8b → Concentrate new housing developments around transit (bus/rail) centers

Description (optional)

1	2	3	4	5
Not important		Neutral		Very important

8c → Reduce automobile dependency (reduced parking availability, pay-to-park lots)

Description (optional)

1	2	3	4	5
Not important		Neutral		Very important

10 > Please rank the following transportation improvements in order of importance. (1 = most important; 5 = less important)

inportant, 5 – iess impe

Drag and drop to rank options

- *	Freeway maintenance, on- and off-ramp enhancements, and projects to improve overall traffic flow	
- •	Bus, streetcar, light rail, shuttle, trolley, vanpool, and other transit services	
- `	Pothole repairs, signal synchronization, and intersection improvements	
- •	Bike lanes, bikeway and sidewalk networks, and pedestrian pathways	
- •	Enhanced infrastructure to accommodate autonomous, driverless vehicles	::

Add choice

8d → Encourage walkability and complete streets (streets designed for all users like drivers, cyclists, pedestrians)

Description (optional)

	1	2	3	4	5
N	ot important		Neutral		Very important

9 → OCTA is looking to improve and introduce more technology into transportation. What do you think OCTA should be focused on? (Select Top Three)

. .

Choose 3
A E-bikes
B E-scooters
C Rideshare (Uber / Lyft)
D Teleworking technologies (virtual meeting platforms, broadband, etc.)
E Real-time transit apps and information (Moovit, Transit App, etc.)
F "Smart" roadways/intersections (adding sensors to inform drivers of real-time travel conditions)
G Autonomous Vehicles
H Synchronized Traffic Signals
1 Other

Add choice

11 → Which two services would you like offered at Mobility Hubs? (Select Top

Two)



Choose 2
A Carsharing (Zipcar, Getaround)
B On-demand shuttle services (OCFlex)
C Bike/e-bike share
D E-scooter share
E Rideshare (Uber / Lyft)
F Delivery/parcel lockers
G Other
Add choice

12 → How important are the following amenities/services for you at Mobility Hubs?



12a → Storage lockers for luggage or package delivery

Description (optional)				
1	2	3	4	5
Not Important		Neutral		Very important

12b -> Secure bicycle parking

Description (optional)

1	2	3	4	5
Not Important		Neutral		Very important

12c → Bicycle repair stand/station

Description (optional)

1	2	3	4	5
Not Important		Neutral		Very important

12d → Availability of staff at the transit station

Description (optional)



12e → Bathrooms

Description (optional)

1	2	3	4	5
Not Important		Neutral		Very important

12f → Seating and open space

Description (optional)

1	2	3	4	5
Not Important		Neutral		Very important

12g -> Dining options (food trucks/carts, vending machines)

1	2	3	4	5
Not Important		Neutral		Very important

12h → Security features (cameras, lighting, etc.)

Description (optior

1	2	3	4	5
Not Important		Neutral		Very important

12i -> ATM machines

Description (optional)

	1	2	3	4	5
þ	Not Important		Neutral		Very important

12j → USB charging stations

13 → Where should Mobility Hubs be placed in Orange County? (Select Top Two)

Choose 2

A threighborhood shopping centers
B At bus stations/stops
C At rail stations/stops
D Near residential areas
E At employment centers
F At major visitor destinations (amusement parks, shopping malls, beaches, etc.)
G Educational facilities (universities, colleges, etc.)
H Other

Add choice

14 \rightarrow What would encourage you to use Mobility Hubs? Is there anything else you would like to share about Mobility Hubs?

Description (optional

Type your answer here...

Shift 🕆 + Enter 🕫 to make a line break

OK 🗸 press Enter 4

Thanks for your input! Now, please tell us a little about yourself. (Optional)





15 → What is your home zip code?

Description (optional)

Type your answer here...



press Enter ୶

16 → What is your age range?

Description (optional)

Add choice

17 → What is your combined annual household income?

Description (optional)



18 → What ethnic group do you consider yourself a part of or feel closest to? Description (optional)

Caucasian/White
B Latino/Hispanic
C African American/Black
D American Indian or Alaskan Native
E Asian - Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian
F Pacific Islander
G Middle Eastern
H Mixed Heritage
Prefer not to answer
J Other

Add choice







19 → Please enter your email address.

Description (optional)

name@example.com



20 → Please enter your mobile phone number to receive text updates on the project.

Description (optional)





¡Bienvenido a la Encuesta Comunitaria sobre el Plan de Transporte de Largo Plazo (LRTP, por sus siglas en inglés) de OCTA!

El LRTP es un plan para mejorar el transporte en Orange County durante los próximos 20 años o más. Su opinión ayudará a desarrollar una visión para el sistema de transporte de OC, así como a identificar objetivos y prioridades.

Comienzo	pulsa Enter ∉
O Toma X min.	

2 → ;Intentémosio de nuevo! Seleccione "OCTA", "LRTP" y "Direcciones 2045" de la lista a continuación. ¡Gracias!"

Escoge 3			
A LRTP			
B Autobus			
C Direcciones 2045			
D Orange County			
E Caminar			
F OCTA			
G Carril ferroviario			
H Bicicleta			
Vieje Compartido			
J Carro			

Add choice

4 → Seleccione sus dos estrategias preferidas para ayudar a disminuir la congestión del tráfico y reducir la cantidad de personas que deben conducir en el futuro. (Seleccione las dos preferidas)

Escoge 2

Fomentar el viaje compartido en automóvil, el viaje compartido en camioneta y en cualquier otro medio de transporte
B Mejorar los carriles para bicicletas, las aceras, la seguridad de los peatones, etc.
C Modificar las calles para acomodar de manera segura todas las formas de transporte (conduciendo, transporte público, caminar, andar en bicicleta, etc.)
D Crear una red de tranvías que lleguen a destinos y centros de actividad importantes
E Fomentar políticas que permitan a los empleados trabajar desde casa al menos un día a la semana, siempre que sea posible
F Mejorar y ampliar los servicios de trenes de pasajeros habituales, incluidos Metrolink y Amtrak
6 Mejorar y ampliar los servicios de autobús
Ofrecer a los pasajeros del transporte público acceso a servicios de autobuses de enlace, bicicletas/scooters compartidos y servicios de viaje compartido en las estaciones de transporte público para llegar a su destino final (Ejemplo: centros de movilidad

Add choice

1 > ¡Asegurémonos de que es usted humano! Seleccione "OCTA", "LRTP" y "Direcciones 2045" de la lista a continuación. ¡Gracias! Esta pregunta es obligatoria. *

Escoge 3			
A LRTP			
B Autobus			
C Direcciones 2045			
D Orange County			
E Caminar			
F OCTA			
G Carril ferroviario			
H Bicicleta			
Vieje Compartido			
J Carro			

Add choice

3 → Cuando viaja alrededor, a través o dentro de Orange County, ¿cómo suele ir de un lugar a otro? (Seleccione y clasifique sus tres opciones preferidas. 1 = más utilizado; 3 = menos utilizado)

Arrastre las opciones y suéltelas para clasificar

Arrastra y suelta para clasificar las opciones

- *	Conduciendo (automóvil, motocicleta, etc.)	
- *	Caminando	
- *	Trolebuses/ autobuses de enlace (OC Flex, Irvine iShuttle, etc.)	
- *	ACCESS/ servicio de transporte para discapacitados	
- *	Bicicleta	
- *	Bicicleta eléctrica/scooter eléctrico	
- *	Autobús	
- *	Metrolink/Amtrak	
- ~	Servicios de transporte a pedido (Uber/Lyft)	

Ad	a .	bo	00
AU		по	
1.	~		~~~

5 → Los precios o las políticas públicas son otras formas de alentar a las personas a que conduzcan menos o utilicen formas alternativas de transporte. Indique cuáles de las siguientes estrategias son sus dos opciones preferidas. (Seleccione las dos más preferidas)

escription (option)

Escoge 2

- A Exigir al menos tres personas en un vehículo para poder utilizar el carril de viaje compartido
- Incentivar a los negocios y a los empleados para que hagan un mayor uso del transporte público, los viajes compartidos en automóvil y el ciclismo en sus traslados entre la casa y el trabajo
- C Fomentar políticas que permitan a los empleados trabajar desde casa al menos un día a la semana, cuando sea posible
- Convertir los carriles para viajes compartidos en carriles expresos con pago de peaje, pero gratuitos para automóviles con tres o más personas, en tanto que el resto de los vehículos pueden pagar un peaje para acceder a los carriles
- E Reducir el costo de los pases y boletos del transporte público para fomentar un mayor uso del tránsito

Add choice

6 → ¿Qué mejoras en el transporte público cree que podrían ayudar más a aliviar la congestión en Orange County? (Seleccione sus tres opciones preferidas)

Description (opti

Escoge 3
A Mejorar el servicio de autobús local en áreas con alto potencial de pasajeros
B Crear servicios de transporte de enlace dentro de la comunidad local que lleven a las personas hacia y alrededor de los principales centros de actividades
Crear servicios de transporte compartido a pedido (Uber/Lyft/Microtransit)
D Agregar servicios de tranvía en áreas con alto potencial de pasajeros
E Mejorar los servicios de trenes de pasajeros habituales (Metrolink/Amtrak)
F Proporcionar carriles solo para transporte público con servicios de alta calidad (por ejemplo: tranvía o transporte público rápido a través de autobús) para conectar los centros de actividad en áreas de alto tráfico
6 Mejorar las conexiones desde y hacia las paradas de autobús y las estaciones de tren mediante el desarrollo de Centros de Movilidad denominados Mobility Hubs (múltiples servicios en un solo lugar)
H Otro

Add choice

7 → Teniendo en cuenta el transporte público en Orange County, ¿cuáles cree que son las principales dificultades para aumentar su utilización? (Seleccione sus dos opciones preferidas) Description (optional)

Escoge 2

A Servicios de transporte público poco frecuentes o poco confiables
B Largos tiempos de viaje
C Falta de servicio cerca de mi casa/destino
D Garantizar la seguridad y la protección
E Falta de transporte, bicicletas/scooters compartidos y servicios de viaje compartido en las estaciones de transporte público
F Encontrar información sobre los servicios de transporte público
G Otro

Add choice

Continuar pulsa Enter 🛛

CRECIENTE DEMANDA DE VIAJES Y UNA LIMITADA DISPONIBILIDAD DE TIERRA



8a → Concentrar el desarrollo comercial en torno a los centros de transporte público (autobús/ferrocarril)

Description (optional)

1	2	3	4	5
No importante		Neutral		Muy importante

8b → Concentrar las nuevas construcciones de vivienda alrededor de los centros de transporte público (autobús/ferrocarril)

Description (optional)

No importanto		Neutral		Muvimportanta
1	2	3	4	5

8c → Reducir la dependencia del automóvil (disponibilidad reducida de estacionamiento, lotes de estacionamiento pagados)

1 2 3 4 5	No importante		Neutral		Muv importante
	1	2	3	4	5

8d → Fomentar las comodidades para caminar y la construcción de calles completas (calles diseñadas para todos los usuarios como conductores, ciclistas o peatones)

cription (optional)

	1	2	3	4	5
No importante			Neutral		Muy importante

9 > OCTA busca mejorar e introducir más tecnología en el transporte. ¿En qué cree que debería

centrarse la OCTA? (Seleccione sus tres opciones preferidas)

Description (optiond

Escoge 3

A Bicicletas eléctricas
B Scooters eléctricos
C Viajes compartidos (Uber / Lyft)
D Tecnologías de teletrabajo (plataformas de reuniones virtuales, banda ancha, etc.)
E Aplicaciones e información sobre transporte público en tiempo real (Moovit, aplicación Transit, etc.)
F Calles/intersecciones "inteligentes" (colocación de sensores para informar a los conductores de las condiciones de viaje en tiempo real)
G Vehículos autónomos
H Señales de tráfico sincronizadas
I Otro

Add choice

10 → Clasifique las siguientes mejoras de transporte en orden de importancia. (1 = más importante; 5 = menos importante)

Description (optional)

Arrastra y suelta para clasificar las opciones

Mantenimiento de autopistas, mejoras en las rampas de para mejorar el flujo de tráfico en general	entrada y salida y proyectos 👯
Autobús, tranvía, tren ligero, servicio de enlace, trolebús, compartido y otros servicios de transporte público	camioneta para viaje 🔢
Reparación de baches, sincronización de la señalización	y vías peatonales.
Terrenos para bicicletas, redes de ciclovías y aceras, ade	emás de vías peatonales 🛛 🔡
Mejora de la infraestructura para acomodar vehículos a	utónomos sin conductor 🛛 🔛

Add choice

pulsa Enter ୶

Los centros de movilidad (Mobility Hubs en inglés) permiten a las personas los transbordos entre los diferentes servicios de transporte, incluidos autobús, bicicleta y scooters eléctricos, viajes compartidos y tren; todo en un solo lugar. Pueden ofrecer comodidades como estaciones de carga eléctrica, almacenamiento seguro para bicicletas o lugares donde sentarse.



12 → ¿Qué importancia tienen para usted las siguientes comodidades/servicios en los centros de movilidad (Mobility Hubs)?

escription (optional)

Continuar pulsa Enter #

12a → Casilleros de almacenamiento para equipaje o entrega de paquetes

1 2 3 4 5 No importante Neutral Muy importante

12b → Estacionamiento seguro para bicicletas

Description (optional)

1	2	3	4	5
No importante		Neutral		Muy importante

12c → Puesto/estación de reparación de bicicletas

Description (option

	1	2	3	4	5
N	o importante		Neutral		Muy importante

12d → Disponibilidad de personal en la estación de transporte público

escription (optional

1	2	3	4	5
No importante		Neutral		Muy importante

12e → Baños

Description (optional)

	1	2	3	4	5	
N	importante		Neutral		Muy importante	

12f → Lugares para sentarse y espacios abiertos

Description (optional)

1	2	3	4	5
No importante		Neutral		Muy importante

11 Elija dos servicios que le gustaría que se ofrecieran en los centros de movilidad (Mobility Hubs) (Seleccione sus dos opciones preferidas)

Description (optional)

A	Alquiler de vehículos por horas (Zipcar, Getaround)
В	Servicios de transporte a pedido (OCFlex)
C	Compartir bicicletas/bicicletas eléctricas
D	Compartir scooter eléctrico
E	Transporte compartido (Uber / Lyft)
F	Casilleros de entrega /paquetería
G	Otro
Add	l choice

12g → Opciones para comer (camiones/carritos de comida, máquinas expendedoras)

Description (optional)

1	2	3	4	5
No importante		Neutral		Muy importante

12h → Elementos de seguridad (cámaras, iluminación, etc.)

Description (optional)

1	2	3	4	5
No importante		Neutral		Muy importante

A11 | P a g e

12i -> Cajeros automáticos



12j → Estaciones de carga USB

1	2	3	4	5
No importante		Neutral		Muy importante

13 → ¿Dónde deberían ubicarse los centros de movilidad (Mobility Hubs) en Orange County? (Seleccione sus dos opciones preferidas)

Escoge 2 A En los centros comerciales del vecindario B En estaciones/paradas de autobuses C En estaciones/paradas de tren D Cerca de areas residenciales E En los centros de empleo F En los principales destinos de los visitantes (parques de atracciones, centros comerciales, playas, etc.) G Instalaciones educativas (universidades, colegios, etc.) H Otro

Add choice

14 > ¿Qué le animaría a utilizar los centros de movilidad (Mobility Hubs)? ¿Hay algo más que le gustaría compartir sobre estos centros?

Description (optional)

Pulsa Shift 1 + Enter « para añadir un párrafo



¡Gracias por su contribución! Ahora, cuéntenos un poco sobre usted. (Opcional)



15 → ¿Cuál es el código postal de su casa?



16 → Cuál es el rango de su edad?

17 → ¿Cuánto es su ingreso familiar anual combinado?

A 16-24	A Menos de 30,000
B 25-34	B 30,000 - 49,999
C 35-44	C 50,000 - 79,999
D 45-54	D 80,000 - 109,999
E 55-64	E 110,000 - 169,999
F 65-74	
	F 170,000 o más
G 75 o mayor	G Prefiero no responder
H Prefiero no responder	
	Add choice
Add choice	

18 → ¿A qué grupo étnico considera usted que pertenece o se siente más cercano?

A Caucásico/Blanco
B Latino/Hispano
C Afroacmericano/Negro
D Indígena Americano o Nativo de Alaska
E Asiático: Coreano, Japonés, Chino, Vietnamita, Filipino o de otro país asiático
F Isleño del Pacífico
G Oriente Medio
H Origen mixto
Prefiero no contestar
J Otro

Add choice

Ingrese su correo electrónico o número de teléfono celular a continuación para recibir actualizaciones del proyecto e invitaciones a reuniones, además de participar en un sorteo para recibir una de las cuatro tarjetas de regalo de \$50.

Continuar pulsa Enter 🖉



19 > Escriba su dirección de correo electrónico.

Description (optional)

nombre@ejemplo.com

Aceptar 🗸 🛛 pulsa Enter 🖉

20 → Ponga su número de teléfono celular para recibir actualizaciones de texto sobre el proyecto.

Description (optional)



Aceptar 🗸 🛛 pulsa Enter 🖉



PHƯƠNG HƯỚNG NĂM 2045

Kế HOẠCH VẬN CHUYỂN DÀI HẠN Các giải pháp giao thông bền vững, công bằng và sáng tạo.

Chào mừng quý vị đến với Khảo Sát Cộng Đồng về Kế Hoạch Vận Tải Dài Hạn (LRTP, từ viết tắt tiếng Anh) của OCTA!

LRTP là một kế hoạch chi tiết cho các cải tiến giao thông ở Orange County trong 20+ năm tới. Ý kiến đóng góp của quý vị sẽ giúp phát triển tầm nhìn cho hệ thống giao thông của OC cũng như xác định các mục tiêu và ưu tiên.



1 > Khi đi trong, xung quanh hoặc qua Orange County, quý vị thường đi từ nơi này đến nơi khác bằng cách nào? (Chọn và xếp hạng ba lựa chọn hàng đầu của quý vị. 1 = sử dụng nhiều nhất; 3 = ít sử dụng)

Kéo và thả để xếp hạng các tùy chọn

Drag and drop to rank options

Lái xe (xe hơi, xe máy, v.v.)	
🕞 v Đi bộ	
Ye chạy bằng dây cáp/xe đưa đón (OC Flex, Irvine iShuttle, v.v.)	
ACCESS/phương tiện giao thông công cộng dành cho người khuyết tật	
· · Xe đạp	
🕞 👻 Xe đạp điện/Xe tay ga điện từ	
🕞 🔹 Xe buýt	
• • Metrolink/Amtrak	
Dịch vụ gọi xe (Uber/Lyft)	::

Add choice

2 → Chọn hai chiến lược hàng đầu của quý vị để giúp giảm tắc nghẽn giao thông và giảm lượng người cần lái xe trong tướng lai. (Chọn Hai Lựa Chọn Hàng Đầu)

Choose 2

Α	Khuyến khích đi chung xe hơi, xe vận tải nhỏ, trả tiền đi chung xe
В	Cải thiện làn đường dành cho xe đạp, via hè, tính an toàn cho người đi bộ, v.v.
С	Sửa đổi đường phố để phù hợp với tất cả các hình thức giao thông (lái xe, chuyển tuyến, đi bộ, đi xe đạp, v.v.) một cách an toàn
D	Tạo một mạng lưới xe điện đường sắt nhẹ phục vụ các điểm đến và trung tâm hoạt động chính
E	Khuyến khích các chính sách cho phép nhân viên làm việc tại nhà ít nhất một ngày mỗi tuần, bất cứ khi nào có thể
F	Cải thiện và mở rộng các dịch vụ đường sắt đi lại bao gồm Metrolink và Amtrak
G	Cải thiện và mở rộng dịch vụ xe buýt
Η	Cung cấp cho những người đi phương tiện công cộng quyền sử dụng xe đưa đón, xe đạp/xe tay ga dùng chung và dịch vụ trả đi chung xe tại các trạm giao thông công cộng để đến điểm dừng cuối cùng của họ (tức là các trung tâm di chuyến)

Add choice

3 → Các cách khác để khuyến khích mọi người ít lái xe hơn hoặc sử dụng các hình thức vận chuyển thay thế là thông qua chính sách hoặc giá cả. Vui lòng cho biết chiến lược nào sau đây là hai tùy chọn hàng đầu của quý vị. (Chọn Hai Lựa Chọn Hàng Đầu) Chon 2 lưa chon

chộn 2 lựa ci

Choose 2

- A Yêu cầu ít nhất ba người trên xe đủ điều kiện đi làn đường dành cho xe chung
- B Khuyến khích các doanh nghiệp và nhân viên sử dụng nhiều hơn phương tiện công cộng, đi chung xe và đi xe đạp trên lộ trình đi lại
- C Khuyến khích các chính sách cho phép nhân viên làm việc tại nhà ít nhất một ngày mỗi tuần, nếu có thể
- D Chuyển làn đường đi chung xe sang làn đường cao tốc có thu phí miễn phí cho xe hơi có từ ba người trở lên và những người khác có thể trả phí để đi vào các làn đường này

E Giảm chi phí vé chuyển tuyến và vé để khuyến khích sử dụng phương tiện công cộng nhiều hơn

Add choice

4 → Phương thức cải thiện phương tiện nào có thể giúp giảm tắc nghẽn nhiều nhất ở Orange County? (Chọn Ba Lựa Chọn Hàng Đầu)

Chọn 3 lựa chọn

Choose 3

A Tăng cường dịch vụ xe buýt địa phương ở các khu vực có tiềm năng hành khách cao
B Tạo dịch vụ đưa đón cộng đồng địa phương đưa mọi người đến và xung quanh các trung tâm hoạt động chính
C Tạo dịch vụ đi xe chung theo yêu cầu (Uber/Lyft/Microtransit)
D Thêm dịch vụ xe điện tại các khu vực có tiềm năng lượng hành khách cao
E Tăng cường dịch vụ đường sắt đi lại (Metrolink/Amtrak)
F Cung cấp các làn đường chỉ chuyển tuyến với các dịch vụ chất lượng cao (ví dụ: đường sắt nhẹ hoặc xe buýt nhanh) để kết nối các trung tâm hoạt động qua các khu vực giao thông mật độ cao
G Tăng cường kết nối đến và đi từ các điểm dừng xe buýt và ga đường sắt bằng cách phát triển Trung Tâm Di Chuyển (nhiều dịch vụ tại một địa điểm)
H Khác

Add choice

5 → Quý vị nghĩ đâu là thách thức chính đối với việc tăng cường sử dụng khi cân nhắc về phương tiện công cộng ở Orange County? (Chọn Hai Lựa chọn Hàng đầu)

Chọn 2 lựa chọn

Choose 2

A Dịch vụ vận chuyển không thường xuyên hoặc không đáng tin cậy B Thời gian di chuyển dài C Thiếu dịch vụ gần nhà/điểm đến của tôi D Đảm bảo an toàn và bảo mật E Thiếu xe đưa đón, xe đạp/xe tay ga dùng chung và dịch vụ đi chung xe tại các trạm trung chuyển F Tìm kiếm thông tin về các dịch vụ vận chuyển G Khác

Add choice
6 - (ắc chiến lược sử dụng đất sau	đây đóng vai trò quan tron	ng như thế nào	VÀ ĐẤT ĐẠI CÓ H	ÀN				
t t	rong việc giảm ủn tắc giao thể rong thang điểm từ 1 đến 5) Description (optional)	ông? (Xếp hạng các câu hỏi từ	ừ 6a đến 6d	Khi dân số, nhà ở và việ chuyến đi hàng ngày và thông cũng tăng theo	c làm tăng lên, các sự tắc nghẽn giao	33%			
1	Continue Nhân Enter 4			DÂN SỐ NHÀ	 τ τ	TẮC NGHẼN GIAO THÔNG			
						8 -	→ Vui lòng xếp hạng các cải tiến giao thông sa	u theo thứ tự quan trọng. (1 = quan trọng nhất; 5 =	ít
							quan trọng) Kéo và thả để xếp hạng các tùy chọn		
6a -	 Tập trung phát tri 	iến kinh doanh xun	ig quanh các trung t	tâm vận chuyển (xe k	ouýt/đường sắt)		Drag and drop to rank options		
						2	Bảo trì đường cao tốc cải tiến trên v	à ngoài đoạn đường nối và các dự án cải thiên	
	1	2	3	4	5		Louis da da da la construcción da	n nhe, xe đưa đón, xe buýt nhanh, xe vanyà các	
	Không quan trọng		Trung lập		Rất quan trọng	9	dịch vụ vận chuyển khác		
							Sửa chữa ổ gà, đồng bộ hóa tín hiệ	u và đường dành cho người đi bộ	
6b -	 Tập trung các dự á 	n phát triển nhà ở i	mới xung quanh các	trung tâm chuyển tư	uyến (xe buýt/		Khu dành cho xe đạp, mạng lưới đư dành cho người đi bộ	ờng dành cho xe đạp và vỉa hè cũng như đường	::
	đường sắt)						Cơ sở hạ tầng nâng cao để đáp ứn	g các phương tiện tự lái	
							Add choice		
	1	2	3	4	5				
6c +	 Không quan trong Giảm sự phụ thuộc Description (optional) 	vào xe hơi (giảm s	Trung lập ố lượng chỗ đậu xe,	bãi đậu xe trả tiền đơ	Rất quan trọng ể đậu xe)	Các trung tâm đ vận chuyến bao đường sắt từ cả trạm sạc điện, cỉ Decruptor lighter Continue	lị chuyến cho phép mọi người chuyến đôi giữa các dịch vụ gôm xe buýt, xe đap và xe try ga điện tử, đi chung xe và ở một địa điểm kho củng cung cặc ác tiện nghì như hồ để xe đạp an toàn hoặc chổ ngõi. M h Estar ở		
	1	2	3	4	5			Can han bir di	
	Không quan trọng		Trung lập		Rất quan trọng				
6d -	 Khuyến khích khả n người dùng như ng Description (optional) 	ăng đi bộ và đường ười lái xe, người đi	y phố hoàn chinh (đu xe đạp, người đi bộ)	ờng phố được thiết k	ế cho tất cả	Trung Tâm V Casta a da Santa da Santa Santa da Santa da Santa Nagada Nama da Santa Nagada Nama da Santa Nagada Nama da Santa Nagada Nama da Santa da Santa Nagada Nama da Santa da Santa da	ân Chuyến	9 → Quý vị muền được cung cấp hai dịch vụ nào tại Trung Tâm Di (Chọn Hai Lựa chọn Hàng đầu) Chon 2 lựa chọn Choose 2 ▲ Di chung xe hơi (Zipcar, Getaround) B Dịch vụ xe buýt theo yêu cầu (OCFlex)	Chuyến?
	1	2	3	4	5	AN AN		D i chung xe dạp/xe dạp diện D Đi chung xe tay ga	
	Không quan trọng		Trung lập		Rất quan trọng			E Đi chung xe (Uber / Lyft)	
7 →	OCTA đang tìm cách cải ti	iến và đưa nhiều công n	nghệ hơn vào giao thông	vận tải. Quý vị cho		Hỗ THƠ GIAO THÔNG CÔNG CÔNG Giả thán bở nếi dâm đảo Nên tiến cuối công	Calification and the control of the	G Khác	
	rằng OCTA nên tập trung	vào điều gì? (Chọn Ba Li	ựa Chọn Hàng Đầu)				•	Add choice	
	Choose 3								
	A Xe đạp điên				10 → Các tiên n	ahi/dich vu s	au đây quan trong như thế nào d	đối với quý vi tại Trung Tâm Di Chuy	rển?
	B Xe tay ga điện				Description ((optional)	A 1 1	· · · · · · · · · · · · · · · · · · ·	
	C Đị chung vệ (Liber / Li	vft)							
	D Công nghệ làm việc t	ừ xa (nền tảng họp trực t	uyến băng thông rông yu	()	Contin	Nhấn Er	nter 🕫		
	E Thông tin và ứng dụn	g chuyển tuyến theo thờ	í gian thực (Moovit, Ứng c	lụng chuyển tuyến,					
	v.v.)								

NHU CÂU ĐI LẠI NGÀY CÀNG TĂNG

I Khác Add choice

G Xe Tự Lái

H Tín Hiệu Giao Thông Đồng Bộ

F Giao lộ/đường "thông minh" (thêm cảm biến để thông báo cho người lái xe về điều kiện di chuyển theo thời gian thực)

10a → Tủ khóa để gửi hành lý hoặc gói hàng

Description (optional)



10b → Bãi đậu xe đạp an toàn



10c → Trạm sửa chữa xe đạp

Description (optional)

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10d → Nhân viên tại trạm trung chuyển sẵn sàng giúp đỡ

Description (optional

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10e → Phòng tắm

Description (optional)				
1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10f → Chỗ ngồi và không gian mở

Description (optional)

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10g → Tùy chọn ăn uống (xe tải/xe đẩy thức ăn, máy bán hàng tự động)

Description (optional)

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10h → Các tính năng bảo mật (camera, ánh sáng, v.v.)

Description (ontional)

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10i → Máy rút tiền ATM

Description (optional)

1	2	3	4	5
Không quan trọng		Trung lập		rất quan trọng

10j → Trạm sạc USB

	1	2	3	4	5
Không q	uan trọng		Trung lập		rất quan trọng

11 → Trung Tâm Di Chuyển nên được đặt ở đầu ở Orange County? (Chọn Hai Lựa chọn Hàng đầu) Chọn 2 lựa chọn

Choose 2
A Tại các trung tâm mua sắm lân cận
B Tại các trạm xe buýt/trạm dừng
C Tại các ga/các trạm đường sắt
D Gần khu dân cư
E Tại các trung tâm việc làm
F Tại các điểm đến chính của khách viếng thăm (công viên giải trí, trung tâm mua sắm, bãi biển, v.v.)
G Cơ Sở Giáo Dục (trường đại học, cao đẳng, v.v.)
H Khác

Add choice

12 → Điều gì sẽ khuyến khích quý vị sử dụng Trung Tâm Di Chuyển? Có điều gì khác quý vị muốn chia sẻ về Trung Tâm Di Chuyển không?

Description (optional)

Câu trả lới ghi ở đây...

Shift 1 + Enter 4 to make a line break

VÂNG 🗸 Nhấn Enter ୶

Cảm ơn thông tin của quý vị! Bây giờ, hãy cho chúng tôi biết một chút về bản thân quý vị. (Không bắt buộc)

Continue Nhán Enter a



13 → Mã zip của nhà quý vị là gì?

escription (optional)

Câu trá lời ghi ở đây...



14 → Độ tuổi của quý vị là bao nhiêu?

 Độ tuổi của quý vị là bao nhiêu? Description (optional) 	Nhập email hoặc số điện thoại di động của quý vị vào bên dưới để nhận thông tin cập nhật về dự án và lời mời tham gia cuộc họp, đồng thời tham gia rút thăm cơ hội để nhận một trong bốn thẻ quả tặng trị giá \$50. Descutation (optional)
A 16-24	Continue Nhân Enter e
B 25-34	
C 35-44	
D 45-54	17 → Vui lòng nhập địa chỉ email củ
E 55-64	Description (optional)
F 65-74	name@example.com
G 75 hoặc hơn	VÂNG 🗸 Nhắn Enter 🦉
H Không muốn đề cập	

Add choice

15 → Tổng thu nhập hộ gia đình hàng năm của quý vị là bao nhiêu?

🔺 Ít hơn 30,000
B 30,000 - 49,999
C 50,000 - 79,999
D 80,000 - 109,999
E 110,000 - 169,999
F 170,000 hoặc hơn
G Không muốn đề cập

Add choice

16 → Quý vị coi mình là một phần của hoặc cảm thấy gần gũi nhất với nhóm dân tộc nào?

A Người Da trắng
B Người La-tinh/Người Gốc Tây Ban Nha
C Người Mỹ gốc Phi / Da đen
D Người Mỹ Da Đỏ hoặc Thổ Dân Alaska
E Người Châu Á - Hàn Quốc, Nhật Bản, Trung Quốc, Việt Nam, Philippines hoặc Châu Á khác
F Cư Dân Đảo Thái Bình Dương
G Người Trung Đông
H Người Đa Chủng Tộc
I Không muốn đề cập
J Khác

Add choice



email của quý vị.



18 → Vui lòng nhập số điện thoại di động của quý vị để nhận thông tin cập nhật qua tin nhắn về dự

án.



VÂNG 🗸 Nhấn Enter ୶

Appendix B

- Print Survey English
- Print Survey Spanish
- Print Survey Vietnamese

DIRECTIONS 2045

LONG RANGE TRANSPORTATION PLAN

Sustainable, equitable, and innovative transportation solutions.

Mobility Hubs

Mobility hubs allow people to switch between transportation services including bus, bike and e-scooters, ridesharing and rail all in one location. They can offer amenities like electric charging stations, secured bike storage or seating.

9. Which two services would you like offered at

Mobility Hubs? (Select top two)

- On-demand shuttle services (OC Flex)
- Delivery/parcel lockers
- Rideshare (Uber/Lyft)
- Bike/e-bike share
- E-scooter share
- Carsharing (Zipcar, Getaround)
- Other_

10. How important are the following amenities/services for you at Mobility Hubs? Rate each amenity/service on a scale of 1 to 5 by circling the number of importance.

([1] Very not Important, [2] Not important, [3] Neutral, [4] Important, [5] Very important)

[1] [2] [3] [4] [5]	Storage lockers for luggage or package delivery
[1] [2] [3] [4] [5]	Secure bicycle parking
[1] [2] [3] [4] [5]	Bicycle repair stand/station
[1] [2] [3] [4] [5]	Availability of staff at the transit station
[1] [2] [3] [4] [5]	Bathrooms
[1] [2] [3] [4] [5]	Seating and open space
[1] [2] [3] [4] [5]	Dining options (food trucks/carts, vending machines)
[1] [2] [3] [4] [5]	Security features (cameras, lighting, etc.)
[1] [2] [3] [4] [5]	ATM machines
[1] [2] [3] [4] [5]	USB charging station

11. Where should Mobility Hubs be placed in Orange **County?** (Select top two)

- At employment centers
- Near residential areas
- Educational Facilities (universities, colleges, etc.)
- At bus stations/stops
- At neighborhood shopping centers
- At rail stations/stops
- At major visitor destinations (amusement parks, shopping malls, beaches, etc.)
- Other



SUSTAINABILITY

Encourage use of sustainable/zeroemissions modes

EQUITY

Improve access for those with limited choices

LIVABILITY

Create a sense of community

TRANSIT SUPPORT

Improve first/last mile connections

12. What would encourage you to use Mobility Hubs? Is there anything else you would like to share about **Mobility Hubs?**



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ATOO

The Long Range Transportation Plan (LRTP) is developed every four years We want your input! Take our survey.

LONG RANGE TRANSPORTATION PLAN











Sustainable, equitable, and innovative transportation solutions.

to define a vision for Orange County that aims to address future mobility needs.

11.1....1.11..1.11....11.1.1.1..1..11...11...111

ORANGE COUNTY TRANSPORTATION AUTHORITY

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DIRECTIONS 2045

LONG RANGE TRANSPORTATION PLAN

1. When you travel in, around or through Orange County, how do you usually get from place to place? Please select your top three choices by circling the number rank based on your most commonly used methods. ([1] most used, [2] commonly used, [3] less used)

- [1] [2] [3] Bicycle
- [1] [2] [3] Ride-hailing services (Uber/Lyft)
- [1] [2] [3] Metrolink/Amtrak
- [1] [2] [3] E-bike/e-scooter
- [1] [2] [3] ACCESS/paratransit service
- [1] [2] [3] Trollies/shuttles (OC Flex, Irvine iShuttle, etc.)
- [1] [2] [3] Walk
- [1] [2] [3] Bus
- [1] [2] [3] Drive (car, motorcycle, etc.)

2. Select your top two strategies to help decrease traffic congestion and reduce how much people need to drive in **the future.** (Select top two)

- Encourage carpooling, vanpooling, and ridesharing
- Offer transit riders access to shuttles, shared bikes/ scooters, and rideshare services at transit stations to get to their final destination (i.e. mobility hubs)
- Encourage policies to allow employees to work from home at least one day per week, whenever possible
- Improve and expand commuter rail services including Metrolink and Amtrak
- Improve and expand bus services
- Improve bike lanes, sidewalks, pedestrian safety, etc.
- Modify streets to safely accommodate all forms of transportation (driving, transit, walking, bicycling, etc.)
- Create a network of light rail streetcars serving key destinations and activity centers

3. Other ways to encourage people to drive less or use alternative forms of transportation are through pricing or policies. Please indicate which of the following strategies are your top two preferences. (Select top two)

- Reduce the cost of transit passes and tickets to encourage more transit use
- Require at least three people in a vehicle to qualify for the carpool lane
- Incentivize businesses and employees to make greater use of transit, carpooling, and bicycling for their commutes
- Convert carpool lanes to tolled express lanes that are free for cars with three or more people, and others can pay a toll to access the lanes
- Encourage policies to allow employees to work from home at least one day per week, where possible

Sustainable, equitable, and innovative transportation solutions.

4. Which transit improvements do you think could help relieve congestion the most in Orange County? (Select top three)

- Enhance local bus service in areas with high ridership potential
- Create on-demand shared ride services (Uber/Lyft/Microtransit)
- Provide transit only lanes with high quality services (e.g. light rail or bus rapid transit) to connect activity centers through high traffic areas
- □ Enhance connections to and from bus stops and rail stations by developing Mobility Hubs (multiple services in one location)
- Enhance commuter rail services (Metrolink/Amtrak)
- Add streetcar services in areas with high ridership potential
- Create local community shuttle services that get people to and around major activity centers
- Other_

5. Considering public transit in Orange County, what do you think are the main challenges to increasing usage? (Select top two)

- Long travel times
- Lack of service close to my home/destination
- Infrequent or unreliable transit services
- Lack of shuttles, shared bikes/scooters, and rideshare services at transit stations
- Ensuring safety and security
- Finding information about transit services
- Other_

6. How important are the following land use strategies in relieving traffic congestion? Rate each strategy on a scale of 1 to 5 by circling the number of importance.

([1] Very not Important, [2] Not important, [3] Neutral, [4] Important, [5] Very important)

- [1] [2] [3] [4] [5] Concentrate business development around transit (bus/rail) centers
- [1] [2] [3] [4] [5] Concentrate new housing developments around transit (bus/rail) centers
- [1] [2] [3] [4] [5] Reduce automobile dependency (reduced parking availability, pay-to-park lots)
- [1] [2] [3] [4] [5] Encourage walkability and complete streets (streets designed for all users like drivers, cyclists, pedestrians)

7. tecl sho	OCTA is looking to improve and introduce more hnology into transportation. What do you think OC uld be focused on? (Select top three)
	Rideshare (Uber / Lyft)
	Teleworking technologies (virtual meeting platform broadband, etc.)
	"Smart" roadways/intersections (adding sensors to inform drivers of real-time travel conditions)
	E-scooters
	Synchronized Traffic Signals
	E-bikes
	Real-time transit apps and information (Moovit, Transit App, etc.)
	Autonomous Vehicles
	Other

8. Please rank the following transportation improvements by circling the number of importance to you. ([1] highest importance to [5] lowest importance; select each number of *importance only once)*

[1]	[2]	[3]	[4]	[5]	Freeway maintenance, on- and o enhancements, and projects to in overall traffic flow
[1]	[2]	[3]	[4]	[5]	Bus, streetcar, light rail, shuttle, t vanpool, and other transit service
[1]	[2]	[3]	[4]	[5]	Pothole repairs, signal synchroniz and intersection improvements
[1]	[2]	[3]	[4]	[5]	Bike lands, bikeway and sidewalk networks, and pedestrian pathwa
[1]	[2]	[3]	[4]	[5]	Enhanced infrastructure to accommodate autonomous drive vehicles

By 2045 the Orange County population is expected to increase by 9%. Without continuous analysis and planning, congestion delay and other transportation challenges will likely worsen.

To address future transportation needs the LRTP reflects current OCTA policies and commitments, transportation study findings, and input from local jurisdictions, business leaders, community leaders, county residents, and transportation planning professionals.



CTA

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off-ramp mprove

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Thanks for your input!

Please tell us a little about yourself. (Optional) What is your home zip code?

What is your age range?

- 16-24
- 25-34
- 35-44
- 45-54 55-64
- 65-74
- 75 or older
- Prefer not to answer

What is your combined annual household income?

- Less than \$30,000
- \$30,000 \$49,999
- \$50,000 \$79,999
- \$80,000 \$109,000
- \$110,000 \$169,000
- \$170,000 or more
- Prefer not to answer

What ethnic group do you consider yourself a part of or feel closest to?

- Caucasian/White
- Latino/Hispanic
- African American/Black
- American Indian or Alaskan Native
- Asian Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian
- Pacific Islander
- Middle Eastern
- Mixed Heritage
- ☐ Other
- Prefer not to answer

Enter your email or mobile number below to receive project updates and meeting invites and be entered into an opportunity drawing to receive one of four \$50 gift cards.

Email address:

Mobile number:__

DIRECCIONES RUMBO AL 2045

PLAN DE TRANSPORTE A LARGO PLAZO

Soluciones de transporte sostenibles, equitativas e innovadoras.

Los centros de movilidad (Mobility Hubs)

Los centros de movilidad (Mobility Hubs) permiten a las personas los transbordos entre los diferentes servicios de transporte, incluidos autobús, bicicleta y scooters eléctricos, viajes compartidos y tren; todo en un solo lugar. Pueden ofrecer comodidades como estaciones de carga eléctrica, almacenamiento seguro para bicicletas o lugares donde sentarse.

9. Elija dos servicios que le gustaría que se ofrecieran en los centros

de movilidad (Mobility Hubs) (Seleccione sus dos opciones preferidas)

- Servicios de transporte a pedido (OC Flex)
- Casilleros de entrega /paquetería
- Transporte compartido (Uber/Lyft)
- Compartir bicicletas/bicicletas eléctricas
- Compartir scooter eléctrico
- Alquiler de vehículos por horas (Zipcar, Getaround)
- Otro _

10. ¿Qué importancia tienen para usted las siguientes comodidades/ servicios en los centros de movilidad (Mobility Hubs)? Califique cada amenidad/servicio en una escala del 1 al 5 marcando con un círculo el número de importancia. ([1] Muy poco importante, [2] No es importante, [3] Neutral, [4] Es Importante, [5] Muy importante)

[1] [2] [3] [4] [5]	Casilleros de almacenamiento para equipaje o entrega de paquetes
[1] [2] [3] [4] [5]	Estacionamiento seguro para bicicletas
[1] [2] [3] [4] [5]	Puesto/estación de reparación de bicicletas
[1] [2] [3] [4] [5]	Disponibilidad de personal en la estación de transporte público
[1] [2] [3] [4] [5]	Baños
[1] [2] [3] [4] [5]	Lugares para sentarse y espacios abiertos
[1] [2] [3] [4] [5]	Opciones para comer (camiones/carritos de comida, máquinas expendedoras)
[1] [2] [3] [4] [5]	Elementos de seguridad (cámaras, iluminación, etc.)
[1] [2] [3] [4] [5]	Cajeros automáticos
[1] [2] [3] [4] [5]	Estaciones de carga USB
11. ¿Dónde debería Hubs) en Orange Cou	n ubicarse los centros de movilidad (Mobility unty? (Seleccione sus dos opciones preferidas)
En los centros d	e empleo

	Cerca de	las areas	residenciales	
--	----------	-----------	---------------	--

Instalaciones educativas (universidades, colegios, etc.)

- En estaciones/paradas de autobuses
- En los centros comerciales del vecindario
- En estaciones/paradas de tren
- En los principales destinos de los visitantes (parques de atracciones, centros comerciales, playas, etc.)

Otro_



SOSTENIBILIDAD

Fomentar el uso de modalidades de transporte sostenibles/ de emisiones cero

EQUIDAD

Mejorar el acceso para aquellos con opciones limitadas

12. ¿Qué le animaría a utilizar los centros de movilidad (Mobility Hubs)? ¿Hay algo más que le gustaría compartir sobre estos centros?

HABITABILIDAD Crear un sentido de

comunidad

APOYO AL TRANSPORTE PÚBLICO

Mejorar las conexiones de la primera/última milla



de movilidad dentro del mismo. para definir la visión del Condado de Orange y cuyo objetivo es abordar las necesidades futuras Cada cuatro años se elabora el Plan de Transporte a Largo Plazo (LRTP, por sus siglas en inglés)

Soluciones de transporte sostenibles, equitativas e innovadoras. ΡΓΑΝ DE ΤΑΑΝSPORTE Α LARGO ΡLΑΖΟ

DIRECCIONES RUMBO AL 2045



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isteresitamos su opinión! Complete nuestra encuesta!

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DIRECCIONES RUMBO AL 2045

PLAN DE TRANSPORTE A LARGO PLAZO

1. Cuando viaja alrededor, a través o dentro de Orange County, ¿cómo suele ir de un lugar a otro? Seleccione sus tres opciones principales encerrando en un círculo la clasificación numérica según sus métodos más utilizados. ([1] más utilizado, [2] De uso común, [3] menos utilizado)

- [1] [2] [3] Bicicleta
- [1] [2] [3] Servicios de transporte a pedido (Uber/Lyft)
- [1] [2] [3] Metrolink/Amtrak
- [1] [2] [3] Bicicleta eléctrica/scooter eléctrico
- [1] [2] [3] ACCESS/servicio de transporte para discapacitados
- [1] [2] [3] Trolebuses/ autobuses de enlace (OC Flex, Irvine iShuttle, etc.)
- [1] [2] [3] Caminando
- [1] [2] [3] Autobús
- [1] [2] [3] Conduciendo (automóvil, motocicleta, etc.)

2. Seleccione sus dos estrategias preferidas para ayudar a disminuir la congestión del tráfico y reducir la cantidad de personas que deben conducir en el futuro. (Seleccione las dos preferidas)

- Fomentar el viaje compartido en automóvil, el viaje compartido en camioneta y en cualquier otro medio de transporte
- Ofrecer a los pasajeros del transporte público acceso a servicios de autobuses de enlace, bicicletas/scooters compartidos v servicios de viaje compartido en las estaciones de transporte público para llegar a su destino final (Ejemplo: centros de movilidad [mobility hubs])
- Fomentar políticas que permitan a los empleados trabajar desde casa al menos un día a la semana, siempre que sea posible
- Mejorar y ampliar los servicios de trenes de pasajeros habituales, incluidos Metrolink y Amtrak
- Mejorar y ampliar los servicios de autobús
- Mejorar los carriles para bicicletas, las aceras, la seguridad de los peatones, etc.
- Modificar las calles para acomodar de manera segura todas las formas de transporte (conduciendo, transporte público, caminar, andar en bicicleta, etc.)
- Crear una red de tranvías que lleguen a destinos y centros de actividad importantes

3. Los precios o las políticas públicas son otras formas de alentar a las personas a que conduzcan menos o utilicen formas alternativas de transporte. Indique cuáles de las siguientes estrategias son sus dos opciones preferidas. (Seleccione las dos más preferidas)

- Reducir el costo de los pases y boletos del transporte público para fomentar un mayor uso del tránsito
- Exigir al menos tres personas en un vehículo para poder utilizar el carril de viaje compartido
- Incentivar a los negocios y a los empleados para que hagan un mayor uso del transporte público, los viajes compartidos en automóvil y el ciclismo en sus traslados entre la casa y el trabajo
- Convertir los carriles para viajes compartidos en carriles expresos con pago de peaje, pero gratuitos para automóviles con tres o más personas, en tanto que el resto de los vehículos pueden pagar un peaje para acceder a los carriles
- Fomentar políticas que permitan a los empleados trabajar desde casa al menos un día a la semana, cuando sea posible

Soluciones de transporte sostenibles, equitativas e innovadoras.

4. ¿Qué mejoras en el transporte público cree que podrían ayudar más a aliviar la congestión en Orange County? (Seleccione sus tres opciones preferidas)

- Mejorar el servicio de autobús local en áreas con alto potencial de pasajeros
- Crear servicios de transporte compartido a pedido (Uber/Lyft/Microtransit)
- Proporcionar carriles solo para transporte público con servicios de alta calidad (por ejemplo: tranvía o transporte público rápido a través de autobús) para conectar los centros de actividad en áreas de alto tráfico
- Mejorar las conexiones desde y hacia las paradas de autobús y las estaciones de tren mediante el desarrollo de Centros de Movilidad denominados Mobility Hubs (múltiples servicios en un solo lugar)
- Mejorar los servicios de trenes de pasajeros habituales (Metrolink/Amtrak)
- Agregar servicios de tranvía en áreas con alto potencial de pasajeros
- Crear servicios de transporte de enlace dentro de la comunidad П local que lleven a las personas hacia y alrededor de los principales centros de actividades
- Otro_

5. Teniendo en cuenta el transporte público en Orange County, ¿cuáles cree que son las principales dificultades para aumentar su utilización? (Seleccione sus dos opciones preferidas)

- Largos tiempos de viaje
- Falta de servicio cerca de mi casa/destino
- Servicios de transporte público poco frecuentes o poco confiables
- Falta de transporte, bicicletas/scooters compartidos y servicios de viaje compartido en las estaciones de transporte público
- Garantizar la seguridad y la protección
- Encontrar información sobre los servicios de transporte público Otro_

6. ¿Qué importancia tienen las siguientes estrategias de uso de la tierra para aliviar la congestión del tráfico? Califique cada amenidad/ servicio en una escala del 1 al 5 marcando con un círculo el número de importancia. ([1] Muy poco importante, [2] No es importante, [3] Neutral, [4] Es Importante, [5] Muy importante)

- [1] [2] [3] [4] [5] Concentrar el desarrollo comercial en torno a los centros de transporte público (autobús/ferrocarril)
- [1] [2] [3] [4] [5] Concentrar las nuevas construcciones de vivienda alrededor de los centros de transporte público (autobús/ferrocarril)
- [1] [2] [3] [4] [5] Reducir la dependencia del automóvil (disponibilidad reducida de estacionamiento, lotes de estacionamiento pagados)
- Fomentar las comodidades para caminar y la [1] [2] [3] [4] [5] construcción de calles completas (calles diseñadas para todos los usuarios como conductores, ciclistas o peatones)

7. tran	OCTA busca mej sporte. ¿En qué	jorar e introducir más tecnología en el é cree que debería centrarse la OCTA?	i	Gracias por su contribución!
(Sel	eccione sus tres	opciones preferidas)	Ar	ora, cuentenos un poco sobre usted. (Opcional)
	Viajes compart	tidos (Uber / Lyft)	20	uai es el coalgo postal de su casa?
	Tecnologías de banda ancha, e	teletrabajo (plataformas de reuniones virtuales, etc.)		
	Calles/intersec para informar a	ciones "inteligentes" (colocación de sensores a los conductores de las condiciones de viaje en	CL	iál es el rango de su edad?
	tiempo real)			25-24
	Scooters eléctr	icos		25-54
	Señales de tráf	ico sincronizadas		55-44 45 54
	Bicicletas eléct	ricas		45-54
	Aplicaciones e	información sobre transporte público en tiempo		55-64
	real (Moovit, a	plicación Transit, etc.)		65-74
	Vehículos autó	nomos	L	75 o mayor
	Otro			Prefiero no responder
			٥S	uánto es su ingreso familiar anual combinado?
				Menos de \$30,000
8. 0	lasifique las sig	uientes mejoras de transporte en orden de	Ē	\$30.000 - \$49.999
imp cadi	ortancia. ([1] m a número de imi	as importante a [5] menos importante; seleccione nortancia solo una vez)		\$50,000 - \$79,999
[1]		Mantanimianto de autonistas, meioras en las		\$80,000 - \$109,000
[T]	[2] [3] [4] [3]	rampas de entrada y salida y proyectos para		\$110,000_\$169,000
		mejorar el flujo de tráfico en general		$1 \pm 170,000 = 105,000$
[1]	[2] [3] [4] [5]	Autobús, tranvía, tren ligero, servicio de		
		enlace, trolebús, camioneta para viaje	L	Prefiero no responder
		compartido y otros servicios de transporte público	Ąخ sie	qué grupo étnico considera usted que pertenece o se
[1]	[2] [3] [4] [5]	Reparación de baches, sincronización de la señalización y vías peatonales		Caucásico/Blanco
[1]	[2] [3] [4] [5]	Terrenos para bicicletas, redes de ciclovías y		Latino/Hispano
[-]		aceras, además de vías peatonales		Afroamericano/Negro
[1]	[2] [3] [4] [5]	Mejora de la infraestructura para acomodar		Indígena Americano o Nativo de Alaska
		vehículos autónomos sin conductor		Asiático: Coreano, Japonés, Chino, Vietnamita, Filipir o de otro país asiático
				Isleño del Pacífico
				Oriente Medio
				Origen mixto
				Otro
Par	a el año 204.	5, se espera que la población del		Prefiero no contestar
Cor	ndado de Ora	ange aumente por 9%. Es probable	l n	graca cu correa alactrónica a número do talófon
que	e sin análisis	y planificación continua, los retrasos	Ce	grese su contenención para recibir actualizaciones
роі	r congestión y	y otros problemas de transporte	de	el proyecto e invitaciones a reuniones, además de
em	peorarán.		ра	articipar en un sorteo para recibir una de las
Par	ra satisfacer l	las necesidades futuras de transporte.	cu	atro tarjetas de regalo de \$50.
el L	RTP refleja la	as políticas y compromisos actuales de	C	Drreo
ос	TA, los result	ados del estudio de transporte y las	el.	ectrónico:
opi	niones de las	s jurisdicciones locales, líderes	e,	
em	presariales, l	líderes comunitarios, residentes del	nı	úmero de teléfono
Cor	ndado y de lo	os profesionales que participan en la	ce	lular:
nla	nificación de	l transnorte		

1]	[2]	[3]	[4]	[5]	Mantenimiento de autopistas, mejoras rampas de entrada y salida y proyectos mejorar el flujo de tráfico en general
1]	[2]	[3]	[4]	[5]	Autobús, tranvía, tren ligero, servicio de enlace, trolebús, camioneta para viaje compartido y otros servicios de transpo público
1]	[2]	[3]	[4]	[5]	Reparación de baches, sincronización d señalización y vías peatonales
1]	[2]	[3]	[4]	[5]	Terrenos para bicicletas, redes de ciclov aceras, además de vías peatonales
1]	[2]	[3]	[4]	[5]	Mejora de la infraestructura para acom vehículos autónomos sin conductor

anificacion del transporte



PHƯƠNG HƯỚNG NĂM 2045

KẾ HOACH VÂN CHUYỂN DÀI HAN

Những giải pháp giao thông bền vững, công bằng và sáng tao.

Nghiên Cứu về Các Trung Tâm Vân Chuyển Ở

Các trung tâm di chuyển cho phép mọi người chuyển đổi giữa các dịch vụ vận chuyển bao gồm xe buýt, xe đạp và xe tay ga điện tử, đi chung xe và đường sắt tất cả ở một địa điểm. Họ cũng cung cấp các tiện nghi như trạm sạc điện, chỗ để xe đạp an toàn hoặc chỗ ngồi.

9. Quý vị muốn được cung cấp hai dịch vụ nào tại Trung Tâm Di

Chuyển? (Chọn Hai Lựa chọn Hàng đầu)

- Dịch vụ xe buýt theo yêu cầu (OCFlex)
- Tủ khóa giao hàng/bưu kiện
- Di chung xe (Uber/Lyft)
- Di chung xe đạp/xe đạp điện
- Di chung xe tay ga
- Di chung xe hơi (Zipcar, Getaround)
- Khác

10. Các tiện nghi/dịch vụ sau đây quan trọng như thế nào đối với quý vị tại Trung Tâm Di Chuyển? Đánh giá từng tiện nghi/dịch vụ theo thang điểm từ 1 đến 5 bằng cách khoanh tròn số cho thấy tầm quan trọng. ([1] Rất không quan trọng, [2] Không quan trọng, [3] Trung lập, [4] Quan trọng, [5] Rất quan trọng)

[1] [2]	[3]	[4]	[5]	Tủ khóa để gửi hành lý hoặc gói hàng
[1] [2]	[3]	[4]	[5]	Bãi đậu xe đạp an toàn
[1] [2]	[3]	[4]	[5]	Trạm sửa chữa xe đạp
[1] [2]	[3]	[4]	[5]	Nhân viên tại trạm trung chuyển sẵn sàng giúp đỡ
[1] [2]	[3]	[4]	[5]	Phòng tắm
[1] [2]	[3]	[4]	[5]	Chỗ ngồi và không gian mở
[1] [2]	[3]	[4]	[5]	Tùy chọn ăn uống (xe tải/xe đẩy thức ăn, máy bán hàng tự động)
[1] [2]	[3]	[4]	[5]	Các tính năng bảo mật (camera, ánh sáng, v.v.)
[1] [2]	[3]	[4]	[5]	Máy rút tiền ATM
[1] [2]	[3]	[4]	[5]	Trạm sạc USB

11. Trung Tâm Di Chuyển nên được đặt ở đâu ở Orange County? (Chọn Hai Lựa chọn Hàng đầu)

- Tại các trung tâm việc làm
- Gần khu dân cư

Cơ Sở Giáo Dục (trường đại học, cao đẳng, v.v.)

- Tại các trạm xe buýt/trạm dừng
- Tại các trung tâm mua sắm lân cận
- Tại các ga/các trạm đường sắt
- Tại các điểm đến chính của khách viếng thăm (công viên giải trí, trung tâm mua sắm, bãi biển, v.v.)

Khác_



SƯ BỀN VỮNG

Khuyến khích sử dụng phương thức bền vững/không phát thải

CÔNG BẰNG

Cải thiện việc tiếp cận cho những người có lựa chọn han chế

KHẢ NĂNG SINH HOAT Tạo cảm giác cộng đồng

HÕ TRƠ GIAO THÔNG

CÔNG CỘNG Cải thiện kết nối dặm đầu tiên/dặm cuối cùng

12. Điều gì sẽ khuyến khích quý vị sử dụng Trung Tâm Di Chuyển? Có điều gì khác quý vị muốn chia sẻ về Trung Tâm Di Chuyển không?



ОСТА





ATTN: PUBLIC OUTREACH RM 703 PO BOX 14184 ORANGE CA 92863-9831



2402 МĂИ ЭИÔÙH ЭИÔÙH9

KÊ HOẠCH VẬN CHUYÊN DÀI HẠN



Những giải pháp giao thông bên vững, công bằng và sáng tạo.

Chúng tối mong muốn nhận được ý kiến từ quý vị! Tham Gia Cuộc Khảo Sát.

hướng cho Quận Cam nhằm giải quyết các nhu cầu đi lại trong tương lai. Kế Hoạch Vận Chuyến Dài Hạn (LRTP) được đặt ra bốn năm một lần để xác định phương

11.1....1.11..1.11....11.1.1.1..1..11...11...111

ORANGE COUNTY TRANSPORTATION AUTHORITY

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PHƯƠNG HƯỚNG NĂM 2045

KẾ HOACH VÂN CHUYỂN DÀI HAN

1. Khi đi trong, xung quanh hoặc qua Orange County, quý vị thường đi từ nơi này đến nơi khác bằng cách nào? Vui lòng chọn ba lựa chon hàng đầu của quý vị bằng cách khoanh tròn số xếp hạng dựa trên các phương tiện quý vị thường dùng nhất. ([1] Được dùng nhiều nhất , [2] Thường được sử dụng , [3] Ít được sử dụng)

- [1] [2] [3] Xe đạp
- [1] [2] [3] Dịch vụ gọi xe (Uber/Lyft)
- [1] [2] [3] Metrolink/Amtrak
- [1] [2] [3] Xe đạp điện/Xe tay ga điện tử
- [1] [2] [3] ACCESS/phương tiện giao thông công cộng dành cho người khuyết tật
- [1] [2] [3] Xe chạy bằng dây cáp/xe đưa đón (OC Flex, Irvine iShuttle. v.v.)
- [1] [2] [3] Đi bộ
- [1] [2] [3] Xe buýt
- [1] [2] [3] Lái xe (xe hơi, xe máy, v.v.)

2. Chọn hai chiến lược hàng đầu của quý vị để giúp giảm tắc nghẽn giao thông và giảm lượng người cần lái xe trong tương lai. (Chọn Hai Lựa Chọn Hàng Đầu)

- Khuyến khích đi chung xe hơi, xe vận tải nhỏ, trả tiền đi chung xe
- Cung cấp cho những người đi phương tiện công cộng quyền sử dụng xe đưa đón, xe đạp/xe tay ga dùng chung và dịch vụ trả đi chung xe tại các trạm giao thông công cộng để đến điểm dừng cuối cùng của họ (tức là các trung tâm di chuyển)
- Khuyến khích các chính sách cho phép nhân viên làm việc tại nhà ít nhất một ngày mỗi tuần, bất cứ khi nào có thể
- Cải thiện và mở rộng các dịch vụ đường sắt đi lại bao gồm Metrolink và Amtrak
- Cải thiện và mở rộng dịch vụ xe buýt
- Cải thiện làn đường dành cho xe đạp, vỉa hè, tính an toàn cho người đi bộ, v.v.
- Sửa đổi đường phố để phù hợp với tất cả các hình thức giao thông (lái xe, chuyển tuyến, đi bộ, đi xe đạp, v.v.) một cách an toàn
- Tạo một mạng lưới xe điện đường sắt nhẹ phục vụ các điểm đến và trung tâm hoạt động chính

3. Các cách khác để khuyến khích mọi người ít lái xe hơn hoặc sử dụng các hình thức vận chuyển thay thế là thông qua chính sách hoặc giá cả. Vui lòng cho biết chiến lược nào sau đây là hai tùy chọn hàng đầu của quý vị. (Chọn Hai Lựa Chọn Hàng Đầu)

- Giảm chi phí vé chuyển tuyến và vé để khuyến khích sử dụng phương tiện công cộng nhiều hơn
- Yêu cầu ít nhất ba người trên xe đủ điều kiện đi làn đường dành cho xe chung
- Khuyến khích các doanh nghiệp và nhân viên sử dụng nhiều hơn phương tiện công cộng, đi chung xe và đi xe đạp trên lộ trình đi lai
- Chuyển làn đường đi chung xe sang làn đường cao tốc có thu phí miễn phí cho xe hơi có từ ba người trở lên và những người khác có thể trả phí để đi vào các làn đường này
- Khuyến khích các chính sách cho phép nhân viên làm việc tại nhà ít nhất một ngày mỗi tuần, nếu có thể

Những giải pháp giao thông bền vững, công bằng và sáng tạo.

4. Phương thức cải thiện phương tiện nào có thể giúp giảm tắc nghẽn nhiều nhất ở Orange County? (Chọn Ba Lựa Chọn Hàng Đầu)

- Tăng cường dịch vụ xe buýt địa phương ở các khu vực có tiềm năng hành khách cao
- Tạo dịch vụ đi xe chung theo yêu cầu (Uber/Lyft/Microtransit)
- Cung cấp các làn đường chỉ chuyển tuyến với các dịch vụ chất lượng cao (ví dụ: đường sắt nhẹ hoặc xe buýt nhanh) để kết nối các trung tâm hoạt động qua các khu vực giao thông mật độ cao
- Tăng cường kết nối đến và đi từ các điểm dừng xe buýt và ga đường sắt bằng cách phát triển Trung Tâm Di Chuyển (nhiều dịch vụ tại một địa điểm)
- Tăng cường dịch vụ đường sắt đi lại (Metrolink/Amtrak)
- Thêm dịch vụ xe điện tại các khu vực có tiềm năng lượng hành khách cao
- Tạo dịch vụ đưa đón cộng đồng địa phương đưa mọi người đến và xung quanh các trung tâm hoạt động chính
- Khác_

5. Quý vị nghĩ đâu là thách thức chính đối với việc tăng cường sử dụng khi cân nhắc về phương tiện công cộng ở Orange County? (Chọn Hai Lựa chọn Hàng đầu)

- Thời gian di chuyển dài
- Thiếu dịch vụ gần nhà/điểm đến của tôi
- Dịch vụ vận chuyển không thường xuyên hoặc không đáng tin cậy
- Thiếu xe đưa đón, xe đạp/xe tay ga dùng chung và dịch vụ đi chung xe tại các trạm trung chuyển
- Dảm bảo an toàn và bảo mật
- Tìm kiếm thông tin về các dịch vụ vận chuyển
- Khác

6. Các chiến lược sử dụng đất sau đây đóng vai trò quan trọng như thế nào trong việc giảm ùn tắc giao thông? Đánh giá từng tiện nghi/dịch vụ theo thang điểm từ 1 đến 5 bằng cách khoanh tròn số cho thấy tầm quan trọng. ([1] Rất không quan trọng, [2] Không quan trọng, [3] Trung lập, [4] Quan trọng, [5] Rất quan trọng)

- [1] [2] [3] [4] [5] Tập trung phát triển kinh doanh xung quanh các trung tâm vận chuyển (xe buýt/đường sắt)
- [1] [2] [3] [4] [5] Tập trung các dự án phát triển nhà ở mới xung quanh các trung tâm chuyển tuyến (xe buýt/ đường sắt)
- [1] [2] [3] [4] [5] Giảm sự phụ thuộc vào xe hơi (giảm số lượng chỗ đậu xe, bãi đậu xe trả tiền để đậu xe)
- [1] [2] [3] [4] [5] Khuyến khích khả năng đi bộ và đường phố hoàn chỉnh (đường phố được thiết kế cho tất cả người dùng như người lái xe, người đi xe đạp, người đi bộ)

iac Cho	OCTA đang tìm cách cải tiến và đưa nhiều công nghệ hơ o thông vận tải. Quý vị cho rằng OCTA nên tập trung vào ọn Ba Lựa Chọn Hàng Đầu)
	Ði chung xe (Uber/Lyft)
	Công nghệ làm việc từ xa (nền tảng họp trực tuyến, bă rộng, v.v.)

- Giao lô/đường "thông minh" (thêm cảm biến để thông báo cho người lái xe về điều kiện di chuyển theo thời gian thực)
- \Box E-scooters
- Synchronized Traffic Signals
- 🗌 Xe đạp điện
- \Box Thông tin và ứng dụng chuyển tuyến theo thời gian thực (Moovit, Ứng dụng chuyển tuyến, v.v.)
- Xe Tự Lái
- Khác ____

8. Vui lòng xếp hạng các cải tiến giao thông sau theo thứ tự trọng. ([1] Quan trọng nhiều nhất [5] Quan trọng ít nhất; Chỉ một lần mỗi số cho thấy tầm quan trọng)

[1]	[2]	[3]	[4]	[5]	Bảo trì đường cao tốc, cải tiến trên và đoạn đường nối và các dự án cải thiện lượng giao thông tổng thể
[1]	[2]	[3]	[4]	[5]	Các dịch vụ xe buýt, xe điện, tàu điện n đưa đón, xe buýt nhanh, xe vanvà các vận chuyển khác
[1]	[2]	[3]	[4]	[5]	Sửa chữa ổ gà, đồng bộ hóa tín hiệu và dành cho người đi bộ
[1]	[2]	[3]	[4]	[5]	Khu dành cho xe đạp, mạng lưới đườr cho xe đạp và vỉa hè cũng như đường người đi bộ
[1]	[2]	[3]	[4]	[5]	Cơ sở hạ tầng nâng cao để đáp ứng cá tiện tự lái

Đến năm 2045, dân số Quận Cam dự kiến sẽ tăng 9%. Nếu không có phân tích và lập kế hoạch liên tục, tình trạng kẹt xe do tắc nghẽn giao thông và các thử thách giao thông vận tải khác có thể sẽ trở nên tồi tệ hơn.

Để giải quyết các nhu cầu vân chuyển trong tương lại, LRTP phản ánh các chính sách và cam kết hiện tại của OCTA, các kết quả nghiên cứu về giao thông vận tải và ý kiến đóng góp từ các cơ quan địa phương, lãnh đạo doanh nghiệp, lãnh đạo cộng đồng, cư dân quận và các chuyên gia lập kế hoạch vận tải.



ơn vào o điều gì?

áng thông

ľ	quan
i	chọn

ngoài lưu

nhẹ, xe dịch vụ

/à đường

ng dành dành cho

ác phương

Cảm ơn thông tin của quý vị!

Bây giờ, hãy cho chúng tôi biết một chút về bản thân quý vị. (Không bắt buộc) Mã zip của nhà quý vị là gì?

Độ t	uổi của quý vị là bao nhiêu?
	16-24
	25-34
	35-44
	45-54
	55-64
	65-74
	75 hoặc hơn
	Không muốn đề cập
Tổng nhiê	g thu nhập hộ gia đình hàng năm của quý vị là bao u?
	Ít hơn \$30,000
	\$30,000 – \$49,999
	\$50,000 – \$79,999
	\$80,000 - \$109,000
	\$110,000 - \$169,000
	\$170,000 hoặc hơn
	Không muốn đề cập
Quý	vị coi mình thuộc nhóm dân tộc nào?
	Người Thuộc Chủng Tộc Da Trắng/Người Da Trắng
	Người La-tinh/Người Gốc Tây Ban Nha
	Người Mỹ Đen/Người Da Đen
	Người Mỹ Da Đỏ hoặc Thổ Dân Alaska
	Người Châu Á - Hàn Quốc, Nhật Bản, Trung Quốc, Việt Nam, Philippines hoặc Châu Á khác
	Cư Dân Đảo Thái Bình Dương
	Người Trung Đông
	Người Đa Chủng Tộc
	Khác
	Không muốn đề cập
Nhậ vào và là rút t	p email hoặc số điện thoại di động của quý vị bên dưới để nhận thông tin cập nhật về dự án ời mời tham gia cuộc họp, đồng thời tham gia thăm cơ hội để nhận một trong bốn thẻ quà

tặng trị giá \$50.

Đia Chỉ Email:

Số Điện Thoại:

Appendix C

- Survey Infographic English
- Survey Infographic Spanish
- Survey Infographic Vietnamese



Survey Results & Outreach

How people travel from place to place:



Improve bike lanes, sidewalks, pedestrian safety, etc.

DIRECTIONS 2045

LONG RANGE TRANSPORTATION PLAN

Strategies to encourage people to drive less or use alternative forms of transportation (top two):



Reduce the cost of transit passes and tickets to encourage more transit use



Encourage policies to allow employees to work from home at least one day per week, where possible





Incentivize businesses and employees to make greater use of transit, carpooling, and bicycling for their commutes



Convert carpool lanes to tolled express lanes that are free for cars with three or more people, and others can pay a toll to access the lanes



Require at least three people in a vehicle to qualify for the carpool lane

Transit improvements to help relieve congestion in Orange County (top three):



46%

Enhance commuter rail services (Metrolink/Amtrak)

Provide transit only lanes with high quality services (e.g. light rail or bus rapid transit) to connect activity centers through high traffic areas

41%

Enhance local bus service in areas with high ridership potential

36%

Add streetcar services in areas with high ridership potential

24%

Create on-demand shared ride services (Uber/Lyft/Microtransit)



Main challenges to increase transit (top two):



Ranking of land use strategies to relieve traffic congestion:



Encourage walkability and complete streets (streets designed for all users like drivers, cyclists, pedestrians)



Concentrate business development around transit (bus/rail) centers



Concentrate new housing developments around transit (bus/rail) centers



Reduce automobile dependency (reduced parking availability, pay-to-park lots)



Preference of technology solutions to improve transportation (top three):



"Smart" roadways/ intersections (adding sensors to inform drivers of real-time travel conditions) 64%



Real-time transit apps and information (Moovit, Transit App, etc.) 60%

Synchronized Traffic Signals 58%



Teleworking technologies (virtual meeting platforms, broadband, etc.) 38%



Rideshare

(Uber / Lyft) 25%





Other 4%

Ranking of transportation improvement types:



Bus, streetcar, light rail, shuttle, trolley, vanpool, and other transit services

Freeway maintenance, on- and off-ramp enhancements, and projects to improve overall traffic flow



Pothole repairs, signal synchronization, and intersection improvements



Bike lanes, bikeway and sidewalk networks, and pedestrian pathways

Enhanced infrastructure to accommodate autonomous driverless vehicles



Preference of potential services at Mobility Hubs (top two):



Ranking of amenities/services at Mobility Hubs:



Potential Mobility Hub locations in Orange County (top two):



Reasons to use Mobility Hubs:



Demographics

Age range:

5%	16-24	
14%	25-34	
16%	35-44	
18%	45-54	
24%	55-64	
15%	65-74	
4%	75 or older	
4%	Prefer not to answ	ver



Annual household income:

17%	Less than \$30.000	
13%	\$30,000 - \$49,999	
14%	\$50,000 – \$79,999	
13%	\$80,000 - \$109,000	<u>୧</u>
15%	\$110,000 - \$169,000	
10%	\$170,000 or more	
18%	Prefer not to answer	

Ethnicity:

- 46% Caucasian/White
- 21% Latino/Hispanic
- 3% African American/Black
- 1% American Indian or Alaskan Native
- 13% Asian Korean, Japanese, Chinese, Vietnamese, Filipino or other Asian
- 1% Pacific Islander
- 1% Middle Eastern
- 3% Mixed Heritage
- 1% Other
- 10% Prefer not to answer



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Community Engagement



Collected **1,825** completed surveys from September 28 to October 31, 2021



E-mailed **22** project notices to up to **67,000** bus and rail riders, rideshare travelers and project stakeholders



Advertised in Spanish and Vietnamese newspapers



Broadcasted **20** Vietnamese radio advertisements



Hosted **5** OCTA committee briefings, **2** Community Leader Roundtable webinars and 1 public webinar attracting 46participants, as well as uploaded the public presentation and online video for those that could not attend



Gathered 900+ public comments from survey respondents and engaged stakeholders during meetings and events

Participant home zip code:



Provided a multi-language helpline for interested parties to take the survey and comment on the study



Conducted a text campaign sending 5 notices to nearly 300 interested parties



Shared an e-communication toolkit with 34 local cities, 124 Community Leader Roundtable Members, and 12OCTA committee/stakeholder organizations



Announced the project through OCTA's On-the Move blog, newsletter and the press



Promoted the project and survey with **4** Twitter posts, 1 Instagram Story, 6 OCTA Facebook posts, and 6 Facebook ads and 1 geofencing ad with 233,000+ views



Shared materials in English, Spanish and Vietnamese





DIRECCIONES RUMBO AL 2045

PLAN DE TRANSPORTE A LARGO PLAZO

Resultados de la Encuesta y Alcance Público

Cómo viajan las personas de un lugar a otro:



Estrategias para animar a las personas a conducir menos o a utilizar formas alternativas de transporte (las dos preferidas):



Reducir el costo de los pases y boletos del transporte público para fomentar un mayor uso del tránsito



Fomentar políticas que permitan a los empleados trabajar desde casa al menos un día a la semana, cuando sea posible



Incentivar a los negocios y a los empleados para que hagan un mayor uso del transporte público, los viajes compartidos en automóvil y el ciclismo en sus traslados entre la casa y el trabajo



Convertir los carriles para viajes compartidos en carriles expresos que sean gratuitos para coches con tres o más personas y otros puedan pagar un peaje para acceder a los carriles

Exigir al menos tres personas en un vehículo para poder utilizar el carril de viaje compartido

Mejoras en el transporte público para aliviar la congestión en Orange County (las tres preferidas):





Crear servicios de transporte de enlace dentro de la comunidad local que lleven a las personas hacia y alrededor de los principales centros de actividades

55%

Mejorar las conexiones desde y hacia las paradas de autobús y las estaciones de tren mediante el desarrollo de Centros de Movilidad denominados Mobility Hubs (múltiples servicios en un solo lugar)

46%

Mejorar los servicios de trenes de pasajeros habituales (Metrolink/Amtrak)

41%

Proporcionar carriles solo para transporte público con servicios de alta calidad (por ejemplo: tranvía o transporte público rápido a través de autobús) para conectar los centros de actividad en áreas de alto tráfico

41%

Mejorar el servicio de autobús local en áreas con alto potencial de pasajeros

36%

Agregar servicios de tranvía en áreas con alto potencial de pasajeros

24% Crear servicios de transporte compartido a pedido (Uber/Lyft/Microtransit)



Principales retos para aumentar el transporte (los dos preferidos):



Clasificación de las estrategias de uso de la tierra para aliviar la congestión del tráfico:



Fomentar las comodidades para caminar y la construcción de calles completas (calles diseñadas para todos los usuarios como conductores, ciclistas o peatones)



Concentrar el desarrollo comercial en torno a los centros de transporte público (autobús/ferrocarril)



Concentrar las nuevas construcciones de vivienda alrededor de los centros de transporte público (autobús/ferrocarril)





Reducir la dependencia del automóvil (disponibilidad reducida de estacionamiento, lotes de estacionamiento pagados)

Preferencia de las soluciones tecnológicas para mejorar el transporte (las tres preferidas):



Calles/intersecciones "inteligentes" (colocación de sensores para informar a los conductores de las condiciones de viaje en tiempo real) 64%



Aplicaciones e información sobre transporte público en tiempo real (Moovit, aplicación Transit, etc.) 60%



Señales de tráfico sincronizadas 58%



Tecnologías de teletrabajo (plataformas de reuniones virtuales, banda ancha, etc.) 38%





Viajes compartidos

(Uber / Lyft) 25%

Vehículos autónomos 18%



Otro 4%

Clasificación de los tipos de mejoras en el transporte:



Autobús, tranvía, tren ligero, servicio de enlace, trolebús, camioneta para viaje compartido y otros servicios de transporte público



Mantenimiento de autopistas, mejoras en las rampas de entrada y salida y proyectos para mejorar el flujo de tráfico en general



Reparación de baches, sincronización de la señalización y vías peatonales



Terrenos para bicicletas, redes de ciclovías y aceras, además de vías peatonales

Mejora de la infraestructura para acomodar vehículos autónomos sin conductor



Preferencia de los posibles servicios en los Centros de Movilidad o Mobility Hubs (los dos preferidos):





Posibles ubicaciones de los Centros de Movilidad o Mobility Hubs en Orange County (las dos preferidas):

- **48%** En los principales destinos de los visitantes (parques de atracciones, centros comerciales, playas, etc.)
- 37% En estaciones/paradas de tren
- 29% Instalaciones educativas (universidades, colegios, etc.)
- 27% En estaciones/paradas de autobuses
- 25% En los centros comerciales del vecindario
- 19% Cerca de los vecindarios residenciales
- 16% En los centros de empleo
- <1% Otro

Razones para usar los Centros de Movilidad o Mobility Hubs:



Factores demográficos

El rango de edad:

 5%
 16-24

 14%
 25-34

 16%
 35-44

 18%
 45-54

 24%
 55-64

 15%
 65-74

 4%
 75 o mayor



4% Prefiero no responder

Ingresos anuales del grupo familiar:

- 17% Menos de \$30,000
 13% \$30,000 \$49,999
 14% \$50,000 \$79,999
 13% \$80,000 \$109,000
 15% \$110,000 \$169,000
 10% \$170,000 o más
 18% Prefiero no responder
- 10% Frenero no responde

Origen étnico:

- 46% Caucásico/Blanco
- 21% Latino/Hispano
- 3% Afroamericano/Negro
- 1% Indígena Americano o Nativo de Alaska
- **13%** Asiático: Coreano, Japonés, Chino, Vietnamita, Filipino o de otro país asiático
- 1% Isleño del Pacífico
- 1% Oriente Medio
- 3% Origen mixto
- 1% Otro
- 10% Prefiero no contestar



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Participación de la comunidad



Se han recopilado **1,825** encuestas completas desde septiembre 28 hasta octubre 31, 2021

Se enviaron 22 avisos del proyecto por correo electrónico a hasta 67,000 pasajeros de autobús y trenes, usuarios de viajes compartidos y partes interesadas en el proyecto

Publicidad en periódicos en español y vietnamita

. . . .



Difusión de **20** anuncios de radio en vietnamita

Se realizaron 5 reuniones de comités de OCTA, 2 seminarios web con líderes comunitarios y 1 seminario web público que atrajo a 46 participantes, y también se subieron la presentación pública y el video en línea para aquellos que no pudieron asistir

Se reunieron más de 900+ comentarios públicos de los encuestados y de las partes interesadas durante las reuniones y los eventos



Se puso a disposición de los interesados una línea de ayuda multilingüe para realizar la encuesta y comentar el estudio



Se realizó una campaña de mensajes de texto y se enviaron 5 avisos a las casi 300 partes interesadas



Se compartió un conjunto de herramientas de comunicación electrónica con **34** ciudades locales, **124** líderes comunitarios y **12** organizaciones de comités/partes interesadas de OCTA



Se anunció el proyecto a través del blog de OCTA On-the Move, el boletín informativo y la prensa



Se promocionó el proyecto y la encuesta con 4 publicaciones en Twitter, 1 historia de Instagram, 6 publicaciones de OCTA en Facebook y 6 anuncios en Facebook y 1 anuncio de geoperimetraje con 233,000+ vistas



Se compartieron materiales en inglés, español y vietnamita





Kết quả khảo sát và tiếp cận

Cách thức mọi người di chuyển đi lại:



PHƯƠNG HƯỚNG NĂM 2045

KẾ HOẠCH VẬN CHUYỂN DÀI HAN

Các chiến lược khuyến khích mọi người ít lái xe hoặc sử dụng hình thức giao thông khác (hai chiến lược hàng đầu):



Giảm chi phí vé chuyển tuyến và vé để khuyến khích sử dụng phương tiện công cộng nhiều hơn



Khuyến khích các chính sách cho phép nhân viên làm việc tại nhà ít nhất một ngày mỗi tuần, nếu có thể



Khuyến khích các doanh nghiệp và nhân viên sử dụng nhiều hơn phương tiện công cộng, đi chung xe và đi xe đạp trên lộ trình đi lại



Chuyển làn đường đi chung xe sang làn đường cao tốc có thu phí miễn phí cho xe hơi có từ ba người trở lên và những người khác có thể trả phí để đi vào các làn đường này

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Yêu cầu ít nhất ba người trên xe đủ điều kiện đi làn đường dành cho xe chung

Cải thiện chuyển tiếp phương tiện để giúp giảm tình trạng tắc nghẽn giao thông ở Orange County (ba cải thiện hàng đầu):





Tạo dịch vụ đưa đón cộng đồng địa phương đưa mọi người đến và xung quanh các trung tâm hoạt động chính

Tăng cường kết nối đến và đi từ các điểm dừng xe buýt và ga đường sắt bằng cách phát triển Trung Tâm Di Chuyển (nhiều dịch vụ tại một địa điểm)

46%

Tăng cường dịch vụ đường sắt đi lại (Metrolink/Amtrak)

41%

Cung cấp các làn đường chỉ chuyển tuyến với các dịch vụ chất lượng cao (ví dụ: đường sắt nhẹ hoặc xe buýt nhanh) để kết nối các trung tâm hoạt động qua các khu vực giao thông mật độ cao

41%

Tăng cường dịch vụ xe buýt địa phương ở các khu vực có tiềm năng hành khách cao

36%

Thêm dịch vụ xe điện tại các khu vực có tiềm năng lượng hành khách cao



Tạo dịch vụ đi xe chung theo yêu cầu (Uber/Lyft/Microtransit)



Khác

Những thách thức chính để cải thiện việc chuyển tiếp phương tiện (hai thách thức hàng đầu):



Xếp hạng chiến lược sử dụng đất để giảm tình trạng tắc nghẽn giao thông:



Khuyến khích khả năng đi bộ và đường phố hoàn chỉnh (đường phố được thiết kế cho tất cả người dùng như người lái xe, người đi xe đạp, người đi bộ)



Tập trung phát triển kinh doanh xung quanh các trung tậm vận chuyển (xe buýt/đường sắt)



Tập trung các dự án phát triển nhà ở mới xung quanh các trung tâm chuyển tuyến (xe buyt/đường sắt)



Giảm sự phụ thuộc vào xe hơi (giảm số lượng chỗ đậu xe, bãi đậu xe trả tiền để đấu xe)



Đi chung xe

(Uber / Lyft) 25%

Tham khảo giải pháp kỹ thuật để cải thiện phương tiện giao thông (ba tham khảo hàng đầu):



Giao lộ/đường "thông minh" (thêm cảm biến để thông báo cho người lái xe về điều kiên di chuyển theo thời gian thực) 64%



Thông tin và ứng dụng chuyển tuyến theo thời gian thực (Moovit, Ứng dụng chuyển tuyến, v.v.) 60%



Tín Hiệu Giao Thông Đồng Bộ 58%



Công nghệ làm việc từ xa (nền tảng họp trực tuyến, băng thông rông, v.v.) 38%





Xếp hạng các loại cải thiện phương tiện giao thông:



Các dịch vụ xe buýt, xe điện, tàu điện nhẹ, xe đưa đón, xe buýt nhanh, xe vanvà các dịch vụ vận chuyển khác



Bảo trì đường cao tốc, cải tiến trên và ngoài đoạn đường nối và các dự án cải thiện lưu lượng giao thông tổng thể



Sửa chữa ổ gà, đồng bộ hóa tín hiệu và đường dành cho người đi bộ



Khu dành cho xe đạp, mạng lưới đường dành cho xe đạp và vỉa hè cũng như đường dành cho người đi bộ

phương tiện tự lái







Xếp hạng các tiện nghi / dịch vụ tại Mobility Hubs:



Những địa điểm Mobility Hub tiềm năng tại Orange County (hai địa điểm hàng đầu):



Lý do sử dụng Mobility Hubs:



Nhân khẩu học

Độ tuổi:

5%	16-24	•
14%	25-34	
16%	35-44	
18%	45-54	
24%	55-64	
15%	65-74	<u> </u>
4%	75 hoặc hơn	
4%	Không muốn	đề cập



Thu nhập hộ gia đình hàng năm:

17% Less than \$30,000 **13%** \$30,000 - \$49,999 14% \$50,000 - \$79,999 13% \$80,000 - \$109,000 **15%** \$110,000 - \$169,000 10% \$170,000 hoặc hơn 18% Không muốn đề cập



Sắc tộc:

- 46% Người Da trắng
- 21% Người La-tinh/Người gốc Tây Ban Nha
- 3% Người Mỹ Bản Địa
- Người Mỹ Da Đỏ hoặc Thổ Dân Alaska 1%
- 13% Người Châu Á Hàn Quốc, Nhật Bản, Trung Quốc, Việt Nam, Philippines hoặc Châu Á khác
- 1% Cư dân đảo Thái Bình Dương
- 1% Người Trung Đông
- 3% Người Đa Chủng Tộc
- 1% Khác
- 10% Không muốn đề cập



Gắn kết cộng đồng



Đã thu thập **1,825** khảo sát hoàn tất từ ngày 28 tháng 9 đến ngày 31, 2021 tháng 10



Đã gửi email **22** thông báo dự án đến **67,000** hành khách đi xe buýt và xe điện, đi chung xe và những người có liên quan đến dự án



Quảng cáo trên báo tiếng Tây Ban Nha và tiếng Việt



Phát **20** quảng cáo trên radio tiếng Việt

Tổ chức 5 OCTA chỉ dẫn ủy ban, 2 hội thảo trực tuyến Bàn Tròn Nhà Lãnh Đạo Cộng Đồng và 1 hội thảo trực tuyến công cộng thu hút 46 người tham gia, cũng như tải lên nội dung thuyết trình công cộng và video trực tuyến cho những người không thể tham dự

Tập hợp 900+ ý kiến cộng đồg từ những người tham gia khảo sát và những người có liên quan tham gia trong các cuộc họp và sự kiện

Mã zip nơi ở của người tham gia:



Cung cấp đường dây hỗ trợ đa ngôn ngữ để các bên quan tâm tham gia khảo sát và có ý kiến về nghiên cứu



Thực hiện chiến dịch văn bản, gửi đi 5 thông báo cho gần 300 bên quan tâm



Chia sẻ bộ dụng cụ giao tiếp điện tử với **34** thành phố địa phương, **124** Thành Viên Bàn Tròn Nhà Lãnh Đạo Cộng Đồng, và 12 OCTA tổ chức ủy ban/người có liên quan



Thông báo dự án qua blog OCTA's On-the Move, bản tin và báo chí



Quảng bá dự án và khảo sát với 4 Twitterbài đăng, 1 Instagram câu chuyện, 6 OCTA Facebook bài đăng, và 6 Facebook quảng cáo, 1 quảng cáo phân định ranh giới địa lý với 233,000+ lượt xem



Chia sẻ tài liệu bằng tiếng Anh, tiếng Tây Ban Nha và tiếng Việt



Appendix D

• Survey Table of Destination Zip Code Response

Long Range Transportation Plan (LRTP)

Surveys Collected by Respondent Destination Zip Code

City	Zip	Total Surveys		City	Zip Total Surve		urveys	City	Zip	Total Surveys	
City	Code	By Zip	By City	City	Code	By Zip	By City		Code	By Zip	By City
Aliso Viejo	92656	11	11	Huntington Beach	92646	12		Orange	92861	1	
Anaheim	92801	21			92647	13			92863	3	
	92802	18			92648	7			92865	6	
	92804	34			92649	3	35		92866	13	
	92805	33		Irvine	92602	9			92867	18	
	92806	32			92603	6			92868	16	
	92807	16	154		92604	17			92869	16	73
Brea	92821	11			92606	14		Placentia	92870	23	23
	92822	2	13		92612	10		Rancho Santa Margarita	92688	17	17
Buena Park	90620	10			92614	12		Rossmoor*	90720	5	5
	90621	14			92617	34		San Clemente	92672	10	
	90622	1			92618	15			92673	21	31
	90623	2	27		92620	17		San Juan Capistrano	92675	19	19
Costa Mesa	92626	14			92697	2	136	Santa Ana	92701	39	
	92627	15	29	La Habra	90631	10	10		92702	1	
Coto de Caza*	92679	47	47	Ladera Ranch*	92694	14	14		92703	18	
Cypress	90630	17	17	Laguna Beach	92651	6			92704	28	
Dana Point	92624	6			92652	1	7		92705	21	
	92629	16	22	Laguna Hills	92653	9	9		92706	17	
Fountain Valley	92708	14	14	Laguna Niguel	92677	29	29		92707	16	140
Fullerton	92831	18		Laguna Woods	92637	9	9	Seal Beach	90740	7	
	92832	28		Lake Forest	92610	6			90743	1	8
	92833	24			92630	28	34	Stanton	90680	8	8
	92834	1		Midway City*	92655	2	2	Trabuco Canyon*	92678	1	1
	92835	9		Mission Viejo	92691	22		Tustin	92780	25	
	92837	1	81		92692	24	46		92782	7	32
Garden Grove	92840	30		Newport Beach	92625	1		Westminster	92683	26	26
	92841	5			92657	2		Yorba Linda	92886	12	
	92842	1			92660	8			92887	4	16
	92843	19			92662	1		Orange County			1,231
	92844	8			92663	6	18	SoCal Outside Orange Count	ty		467
	92845	5	68					Outside SoCal			57
* Unincorporated Ora	ange Count	y (69)						Total Survey Resposent Zip	Codes	A39 Page	1,755

Unincorporated Orange County (69)



DIRECTIONS 2045

LONG RANGE TRANSPORTATION PLAN

Long-Range Transportation Plan Workshop

Sustainable, equitable, and innovative transportation solutions.



Key Challenges



Evolving travel trends

Increasing climate-related risks

Changing funding outlook

Diversity, equity, and inclusion

Long-Range Transportation Plan (LRTP) Goals



Support Sustainability

Public and Stakeholder Engagement

Engagement to date:

- OCTA Advisory Committees
- Community-based organizations
- Public webinar and Planning Forum
- Community events
- Telephone helpline
- Multilingual online survey, digital media, and print/radio ads



DIRECTIONS 2045

LONG RANGE TRANSPORTATION PLAN Sustainable, equitable, and innovative transportation solutions.

Welcome to the OCTA Long Range Transportation Plan (LRTP) Community Survey!

Haga clic aquí para español Bấm vào đây để xem tiếng Việt

LRTP: Paths to Success



Sustainable, equitable, and innovative transportation solutions.

- 1. Extend or modify select Measure M2 (M2) programs



Expand transit services



e i

6. Embrace technology

5. Eliminate freeway

chokepoints



3. Enhance active transportation



7. Elevate maintenance and resilience priorities

4. Explore mobility integration









1. Extend or Modify M2 Programs

Purpose:

 Invest funds in popular and effective programs beyond the sunset of M2

- Signal synchronization
- Roadway improvements
- Community circulators
- Metrolink service
- Transit accessibility
- Senior mobility
- Environmental mitigation







2. Expand Transit Services

Purpose:

• Provide more service tailored to local needs

How:

- Rapid bus (BRAVO!)
- Microtransit (OC Flex/SC Rides)
- High-capacity transit
- Reduced or free transit fares

SC Rides – City of San Clemente partnership with Lyft and Butterfli to provide subsidized on-demand rides to and from select areas throughout San Clemente.









Enhance Active Transportation

Purpose:

3.

 Provide safe and attractive active transportation facilities through coordination with local jurisdictions

- Coordinate regional routes
- Support local routes
- Reallocation of excess roadway space







Purpose:

• Improve access to mobility options and reduce first-/last-mile challenges

- Mobility hubs
- Mobility as a service
- Micromobility







5. Eliminate Freeway Chokepoints

Purpose:

 Enhance safety and reduce driving delays within existing right-of-way

- Auxiliary lanes
- Braided ramps
- Address lane drops
- System management













6. Embrace Technology

Purpose:

• Leverage technology and services to provide more options and improve efficiency

- Electric vehicle charging stations
- Remote work/teleservices
- E-bikes/neighborhood electric vehicles
- Connected vehicles/enhanced signal synchronization
- Monitor emerging technology










7. Elevate Maintenance and Resilience Priorities

Purpose:

How:

 Preserve and protect transportation investments

- Maintain existing infrastructure
- Assess risks and mitigations
- Electric bus fleet





LRTP Goals Review

		Paths to Success						
Goals	Metrics	Extend or Modify M2 Programs	Expand Transit Services	Enhance Active Transportation	Explore Mobility Integration	Eliminate Freeway Chokepoints	Embrace Technology	Elevate Maintenance and Resilience Priorities
Improve System Performance	Less time in traffic	Х				X	X	
	Reliable travel times	Х	X		X	X	X	
	Enhanced safety for all	Х				X		
Expand System Choices	Improved access to jobs and key destinations	Х	Х		X	X	X	
	Improved access to transit		Х		X			
	Fewer single-occupant vehicle trips	Х	X	X	X		Х	
	Lower travel costs	Х	Х	X	X			
	Expanded bikeways network			Х				
	More multimodal and rideshare facilities				X			
Support Sustainability	Fewer vehicle miles traveled	Х	Х	Х	X		Х	
	Reduced emissions	Х	Х	X	X	X	Х	X
	Maintains pavement conditions	X						X
	Reduced climate-related risk							X

Initial Model Results

	2019 Base Year	2045 No-Build	Draft 2045 Preferred Plan
Daily Transit Trips	131,000	138,000	185,000
Total Vehicle Hours of Delay	341,000	454,000	316,000
Delay as Percent of Travel Time	15%	18%	14%
Daily Vehicle Miles Traveled	76,400,000	81,900,000 (7% increase vs 2019)	82,100,000 (7% increase vs 2019)
Average Speed – Freeways – Peak Period	41	40	42
Average Speed – Arterials – Peak Period	26	25	27

Short-Term Action Plan

Orange County Planning Activities

Coordination with Local Partner Agencies	Transportation Demand Management		
Long-Term Transportation Funding Strategy	Mobility Hubs		
Corridor Studies and Improvements	Active Transportation Investments		
OC Transit Vision Update	Complete Streets		
Transit Support Services	Sustainable Transportation Strategies		
OC Metrolink Vision	Electric Vehicle Charging Infrastructure		
Managed Lane Studies	Joint Development Studies		
Future of the Toll Roads	Asset Management		
Freeway Chokepoints	Adaptation Planning		
Signal Synchronization Strategies	Traffic Model Update		

Short-Term Action Plan (continued)

Regional Planning Activities	Emerging Issues		
Coordination with Regional Partner Agencies	Monitor Technology		
coordination with regional rather Ageneics	Connected Infrastructure Needs Assessment		
Trade Corridors/Goods Movement			
2024 RTP/SCS	State and Federal Regulation		
2028 Olympics	State and Federal Funding		
LA Metro Countywide ExpressLanes Strategic Plan	Transportation Outreach and Education		
San Diego's I-5 HOT Lane Project	Active Transportation Safety		
Wast Santa Ana Branch / Dacific Electric Pight of Way	Transit Use and Trip Planning		
West Santa Ana Branchy Pacific Liectric Right-OF-Way	Diversity, Equity, and Inclusion		
Gold Line Eastern Extension – Phase 2	RTP/SCS – Regional Transportation Plan/Sustainable Community Strategies LA Metro – Los Angeles Metropolitan Transportation Authority I-5 – Interstate 5 HOT – High-occupancy toll		

Next Steps



RTP/SCS Regional Transportation Plan/Sustainable Communities Strategy