



AGENDA

Technical Advisory Committee

Committee Members

Shaun Pelletier	City of Aliso Viejo
Rudy Emami	City of Anaheim
Tony Olmos	City of Brea
David Jacobs	City of Buena Park
Raja Sethuraman	City of Costa Mesa
Nardy Khan	County of Orange
Doug Dancs	City of Cypress
Matthew Sinacori	City of Dana Point
Mark Lewis	City of Fountain Valley
Don Hoppe, <i>Vice Chair</i>	City of Fullerton
William Murray	City of Garden Grove
Travis Hopkins	City of Huntington Beach
Manuel Gomez, <i>Chair</i>	City of Irvine
Chris Johansen	City of La Habra
Michael Belknap	City of La Palma
Christina Templeton	City of Laguna Beach
Ken Rosenfield	City of Laguna Hills
Nasser Abbaszadeh	City of Laguna Niguel
Akram Hindiyeh	City of Laguna Woods
Tom Wheeler	City of Lake Forest
Dave Hunt	City of Los Alamitos
Mark Chagnon	City of Mission Viejo
David Webb	City of Newport Beach
Joe DeFrancesco	City of Orange
Luis Estevez	City of Placentia
E. Maximous	City of Rancho Santa Margarita
Tom Bonigut	City of San Clemente
Steve May	City of San Juan Capistrano
William Galvez	City of Santa Ana
Steve Myrter	City of Seal Beach
Stephanie Camorlinga	City of Stanton
Doug Stack	City of Tustin
Akram Hindiyeh	City of Villa Park
Marwan Youssef	City of Westminster
Michael Wolfe	City of Yorba Linda

Orange County Transportation Authority
550 South Main Street, Room 09
Orange, California
February 28, 2018 1:30 p.m.

Any person with a disability who requires a modification or accommodation in order to participate in this meeting should contact the Measure M2 Local Programs section, telephone (714) 560-5372, no less than two (2) business days prior to this meeting to enable OCTA to make reasonable arrangements to assure accessibility to this meeting.

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.

All documents relative to the items referenced in this agenda are available for public inspection at www.octa.net or through the Measure M2 Local Programs office at the OCTA Headquarters, 600 South Main Street, Orange, California.



Call to Order

Self-Introductions

Consent Calendar

All items on the Consent Calendar are to be approved in one motion unless a Technical Advisory Committee member requests separate action on a specific item.

1. Approval of Minutes

Approval of the Technical Advisory Committee regular meeting minutes of October 25, 2017

Discussion Items

- 2. 2018 Project V Guidelines and Call for Projects** – Kurt Brotcke
- 3. M2 Delivery – Next 10 Plan Updates** – Tamara Warren
- 4. Systematic Safety Analysis Report (SSAR)** – Paul Martin

Regular Items

5. Countywide Pavement Management Plan Guidelines Update – Harry Thomas

Overview

The Countywide Pavement Management Plan Guidelines were approved by the Orange County Transportation Authority Board of Directors on May 24, 2010, and subsequently revised in 2012, 2015, and 2016. Following the recommendation of the Technical Advisory Committee, the Board of Directors will consider approval of amended Countywide Pavement Management Guidelines at the April 9, 2018 Board meeting.

Recommendation

Recommend for Board approval.

6. Correspondence

OCTA Board Items of Interest

- **Monday, October 23, 2017**

Item 11: Federal Transit Administration Sections 5307, 5310, 5337, and 5339 Program of Projects for Federal Fiscal Year 2017-18

- **Monday, November 13, 2017**

Item 23: Measure M2 Sales Tax Forecast

Item 25: OC Bus 360° Update

Item 27: Measure M2 Updated Next 10 Delivery Plan

- **Monday, December 11, 2017**

Item 6: 2018 Technical Steering Committee Membership



Item 8: Comprehensive Transportation Funding Programs Semi-Annual Review - September 2017

Item 9: Measure M2 Quarterly Progress Report for the Period of July 2017 Through September 2017

Item 10: Fiscal Year 2017-18 Measure M2 Annual Eligibility Review

- **Monday, January 8, 2018**

Item 15: Project V Community-Based Transit Circulators Program Ridership Report

- **Monday, January 22, 2018**

Item 14: Local Agencies' Interest in Project V Call for Projects

- **Monday, February 12, 2018**

Item 12: Orange County Transportation Authority State and Federal Grant Programs – Update and Recommendations

Item 22: 2018 Project V Community-Based Transit/Circulators Program Guidelines and Call for Projects

Announcements by Email

- MPAH Traffic Calming Policy Update, *sent 10/23/17*
- November 8, 2017 Technical Steering Committee Cancellation Notice, *sent 10/30/17*
- Systematic Safety Plan Opportunity, *sent 10/30/17*
- Pavement Inspector Certification, *sent 11/1/17*
- Pavement Distress Training RSVP Reminder, *sent 11/7/17*
- November 22, 2017 Technical Advisory Committee Cancellation Notice, *sent 11/13/17*
- Measure M2 Community-Based Transit Circulator Grant Program (Project V) - Letter of Interest, *sent 11/20/17*
- Pavement Management Plan Due to OCTA June 29, 2018, *sent 11/27/17*
- December 13, 2017 Technical Steering Committee Cancellation Notice, *sent 12/5/17*
- Save the Date: Pavement Management Software Training, *sent 12/14/17*
- December 27, 2017 Technical Advisory Committee Cancellation Notice, *sent 12/18/17*
- January 10, 2018 Technical Steering Committee Cancellation Notice, *sent 1/2/18*
- RSVP: Pavement Management Software Training, *sent 1/4/18*
- January 24, 2018 Technical Advisory Committee Cancellation Notice, *sent 1/15/18*
- Measure M2 Eligibility – NEW PMP Submittal Template, *sent 1/16/18*
- February 28, 2018 Technical Advisory Committee Meeting: Save the Date, *sent 1/24/18*
- February 14, 2018 Technical Steering Committee Cancellation Notice, *sent 2/5/18*
- 2018 Project V Call for Projects – Now Open, *sent 2/12/18*

7. Committee Comments

8. Local Assistance Update

9. Staff Comments

- SB-1 Update – Louis Zhao
 - Active Transportation Program Update – Louis Zhao
 - 2018 California Statewide Local Streets & Roads Needs Assessment – Harry Thomas
-



10. Items for Future Agendas

11. Public Comments

12. Adjournment

*The next regularly scheduled meeting of this Committee is Wednesday, March 28, 2018 at
1:30 p.m.*



AGENDA

Technical Advisory Committee

Item #1

October 25, 2017

Technical Advisory Committee

Minutes



MINUTES

Technical Advisory Committee

Voting Representatives Present:

Shaun Pelletier	City of Aliso Viejo
Rudy Emami	City of Anaheim
Tony Olmos	City of Brea
David Jacobs	City of Buena Park
Raja Sethuraman	City of Costa Mesa
Nardy Khan	County of Orange
Kamran Dadbeh	City of Cypress
Matt Sinacori	City of Dana Point
Temo Galvez	City of Fountain Valley
Don Hoppe	City of Fullerton
Manuel Gomez	City of Irvine
Chis Johansen	City of La Habra
Christina Templeton	City of Laguna Beach
Ken Rosenfield	City of Laguna Hills
Akram Hindiyeh	City of Laguna Woods
Tom Wheeler	City of Lake Forest
Frank Sun	City of Orange
E. Maximus	City of Rancho Santa Margarita
Tom Bonigut	City of San Clemente
Taig Higgins	City of Santa Ana
Akram Hindiyeh	City of Villa Park
Michael Wolfe	City of Yorba Linda
Tiffany Tran	Caltrans

Voting Representatives Absent:

Willian (Bill) Murray	City of Garden Grove
Travis Hopkins	City of Huntington Beach
Michael Belknap	City of La Palma
Nasser Abbaszadeh	City of Laguna Niguel
Dave Hunt	City of Los Alamitos
Mark Chagnon	City of Mission Viejo
Mark Vukojevic	City of Newport Beach
Luis Estevez	City of Placentia
Steve May	City of San Juan Capistrano
Steve Myrter	City of Seal Beach
Stephanie Camorlinga	City of Stanton
Doug Stack	City of Tustin
Marwan Youssef	City of Westminster

Orange County Transportation Authority
550 S. Main Street, Room 09
Orange, CA

October 25, 2017 1:30 PM

Guests Present:

Khalid Bazmi
Jennifer Rosales
Joe Pareo
Michael Plotnik
Andy Tran
Iris Lee

Staff Present:

Brianna Martinez
May Hout
Kurt Brotcke
Johnny Dunning
Stephanie Chhan
Dustin Sifford
Tamara Warren
Harry Thomas
Louis Zhao
Adrienne Cardoso
Jodie McCann
Christina Moore



Meeting was called to order by Mr. Tom Wheeler at 1:30 p.m.

Self-Introductions

CONSENT CALENDAR

- 1. The Minutes for the June 28, 2017 meeting were approved.**
Manuel Gomez motioned to approve, seconded by Don Hoppe.

REGULAR ITEMS

- 2. September 2017 Semi-Annual Review – Christina Moore**

Ms. Moore gave a brief overview of the types of requests that are available to local agencies during the Semi-Annual Review process. Ms. Moore called to attention the date in Attachment A pertaining to two Irvine projects listed as May 12, 2020, but should be corrected to May 12, 2019 as listed in Attachment B. Adjustments included 1 timely use of funds extension for Local Fair Share, 8 timely use of funds extensions for CTFP projects, 14 scope changes, and 1 advance. Staff found all requests eligible per the guidelines and recommended approval for the project adjustments. There was no further discussion.

Don Hoppe motioned to approve, Tony Olmos seconded. The item was approved.

- 3. 2018 Technical Steering Committee Membership – Kurt Brotcke**

Mr. Brotcke presented the Technical Steering Committee roster recommendation listed in Attachment A. There was no further discussion.

Ken Rosenfield motioned to approve. Don Hoppe seconded. The item was passed.

DISCUSSION ITEMS

- 4. Measure M2 Streets and Road Signs – Tamara Warren**

Ms. Warren presented on changes in signage for the Streets and Roads Improvement Projects from Measure M street signage to the new OC Go signage. New signage has a local focus and emphasizes transportation and the use of local tax dollars. Ms. Warren stated that the signs are bigger and have replaceable year stickers to adjust to project demands. The program aims to create a consistency across all different modes of transportation within Orange County.

Don Hoppe asked if the signs would be used for the Signal Synchronization Program, Ms. Warren responded that it's not recommended at this time.

Mr. Wheeler asked when the project would go into effect. Ms. Warren responded that the plan for transition has only recently gone into development, but staff would share updates with the TAC. There was no further discussion.

- 5. Long Range Transportation Plan Updates – Greg Nord**

Mr. Nord gave an overview of the Long Range Transportation Plan (LRTP) with updates on the Board's input and local agency involvement at recent workshops. Key issues were presented along with the



Goals and Objectives of the 2018 LRTP. Mr. Nord stated that staff plans to return to the board in February with initial model results, and to release the Draft LRTP for public review in the spring 2018. Mr. Nord stated that they expect to finalize the document in fall 2018. There was no further discussion.

6. Draft Revisions to the 2017-18 State and Federal Legislative Platforms – Dustin Sifford

Mr. Sifford presented an overview on mid-session legislative platform updates that are done on an annual basis. Mr. Sifford provided a high-level overview of the changes that were made to the State platform shown in Attachment A. He also stated that Federal platform updates were available in Attachment B. There was no further discussion.

7. SB 1 Updates – Louis Zhao

Mr. Zhao provided a brief update on SB1 including changes to guidelines and processes in obtaining state funds with focus on four major programs including: The Active Transportation Program, Caltrans Transportation Planning Grants, the Local Partnership Program, and Local Streets and Roads. There was no further discussion.

8. Correspondence

- OCTA Board Items of Interest – See Agenda
- Announcements Sent by Email – See Agenda

9. Committee Comments

- Manuel Gomez introduced Marc Linsenmayer, the new Director of Transportation at the City of Irvine.

10. Local Assistance Update

- Tiffany Tran gave updates on the Architectural & Engineering procurement and Emergency Relief training that occurred the previous month. Ms. Tran stated that the next training would be in December; the Federal Aid training will teach participants how to work with Caltrans and secure funding. She also stated that Caltrans is requesting CTC progress report due November 13 with suggestions to submit a week prior to the deadline for review purposes.

11. Staff Comments

- **Bus Stop Maintenance** – Andrea West

Ms. West introduced Johnny Dunning, the department manager for scheduling and customer advocacy and who is the person of contact for bus stop maintenance at OCTA. Ms. West noted that OCTA has been receiving complaints about bus stop maintenance and reminded the group that OCTA has a contract with Shelter Clean and that the services are available for local agencies to utilize.

12. Items for Future Agendas – None

13. Public Comments – None

14. Adjournment at 2:17 p.m.



AGENDA

Technical Advisory Committee

Item #2

2018 Project V Guidelines & Call for Projects



COMMITTEE TRANSMITTAL

February 12, 2018

To: Members of the Board of Directors
From: Laurena Weinert, ^{ML} Clerk of the Board
Subject: 2018 Project V Community-Based Transit/Circulators Program Guidelines and Call for Projects

Transit Committee Meeting of February 8, 2018

Present: Directors Davies, Do, Jones, Pulido, Tait, and Winterbottom
Absent: Director Murray

Committee Vote

This item was passed by the Members present.

Directors Do and Pulido were not present to vote on this item.

Committee Recommendations (reflects change from staff's recommendations)
Recommendation C was added

- A. Approve the 2018 Project V Community-Based Transit/Circulators Program Guidelines.
- B. Authorize staff to issue the 2018 Project V Community-Based Transit/Circulators Call for Projects in the amount of \$12 million.
- C. Authorize changes to the guidelines to allow consideration of 2018 Project V applications for off-peak Orange County Transportation Authority-led services, on a case-by-case basis.



February 8, 2018

To: Transit Committee

From: Darrell Johnson, Chief Executive Officer

A handwritten signature in black ink, appearing to read "Darrell Johnson for", is written over the printed name of the Chief Executive Officer.

Subject: 2018 Project V Community-Based Transit/Circulators Program Guidelines and Call for Projects

Overview

Measure M2 establishes a competitive program through Project V to fund local transit services such as shuttles, trolleys, and circulators that complement regional transit services. Based on interest from local agencies, a competitive Call for Projects is recommended, and updated guidelines are presented for review and approval.

Recommendations

- A. Approve the 2018 Project V Community-Based Transit/Circulators Program Guidelines.
- B. Authorize staff to issue the 2018 Project V Community-Based Transit/Circulators Call for Projects in the amount of \$12 million.

Background

Project V is a competitive program under Measure M2 (M2) that provides funding to develop and implement local transit services. Based on current forecasts, the total estimated revenue for Project V under M2 for the 30-year period (2011-2041) is \$251 million. Services eligible for this program include local shuttles, trolleys, and circulators that complement regional bus and rail services, and meet needs in areas not adequately served by regional transit. Year-round services and seasonal/special event shuttles have been eligible to compete for funding. Further, Orange County Transportation Authority (OCTA) has helped local agencies provide fixed-route services by providing transit operations and maintenance directly through OCTA's Transit Division. These services are frequently referred to as "OCTA-led" services.

The initial guidelines for Project V were approved by the OCTA Board of Directors (Board) in November 2012. The last Project V Call for Projects (call) occurred in 2016. Since inception, the Board has approved 23 projects with capital and/or operations and maintenance elements for a total of \$36.5 million in Project V funds. Through September 30, 2017, OCTA has received reimbursement requests from local agencies and has expended \$3.6 million for Project V services.

Seasonal service and special events serve the local community and tourists in higher density areas during peak seasons to alleviate local congestion and connect parking locations to activity centers, which contributes to their higher productivity. Local circulators provide fixed-route services to the local community and regional commuters by connecting key activity centers within the local service area. The special event services have proven to be especially successful, whereas the year-round fixed-route services have not performed at the same level, and several agencies have experienced difficulties in meeting the minimum performance standard (Attachment A).

To further serve the mobility needs of the communities in Orange County, staff requested letters of interest from local agencies to determine the timing for a future round of Project V funding. As reported to the Board in January 2018, local agencies primarily expressed an interest in seasonal, special event, and year-round services (Attachment B).

Discussion

Considering the level of interest in providing new community-based services and the lessons learned from existing projects and successes, staff is proposing a 2018 Project V call targeting special events and seasonal services. However, year-round services provided through non-OCTA service providers will be eligible for consideration. While OCTA-led services will not be eligible for this call cycle, OCTA will continue to provide support to local agencies wishing to use their own resources to develop these types of services under Project V. If an expansion of an existing Project V year-round service is being proposed, the existing service must have met the minimum performance requirement in the last quarter (Q2: October 1, 2017 - December 31, 2017) to qualify for consideration. Due to low interest, the proposed guidelines do not include planning studies in this call. This will allow OCTA to focus Project V resources on service operations and capital in this call. It is proposed to make available \$12 million in Project V funds for a 2018 call. Grants would be available for a period of three to five years, and this will enable projects in this call to better align with current projects and timescales for a future Project V call.

The Project V Guidelines have been updated to include criteria relevant to the proposed 2018 call (Attachment C). The updates mainly relate to the period of funding (three to five years), eligible categories, and scoring criteria related to the proposed call. Projects that apply for the 2018 call would be evaluated and scored against criteria identified in the guidelines (Attachment D). The 2016 Project V call allowed approximately 3 months for applications (November 23, 2015 – February 29, 2016) and 3 months for OCTA project-level reviews. The 2018 call includes approximately 6 weeks for agencies to develop and submit applications, with applications due by March 23, 2018. OCTA will then review and score the applications through early May 2018. The expedited timescale is due to the high level of interest in a call from local agencies and allows the opportunity to award funding from fiscal year (FY) 2018-19, if an agency can demonstrate project readiness.

Next Steps

Upon approval of the guidelines, OCTA will notify local agencies of the call and applications will be due by March 23, 2018. Staff will then assess the applications and return to the Board with funding recommendations in June 2018. Funding will be available starting in FY 2018-19, if an agency can demonstrate adequate project readiness, and in FY 2019-20.

Summary

Project V Community-Based Transit/Circulators 2018 Program Guidelines for administration of a 2018 call are presented for review and approval. Staff is also seeking approval to issue a 2018 call.

Attachments

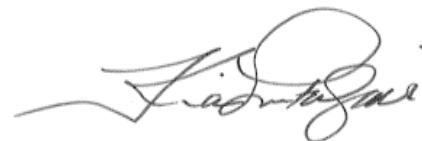
- A. Project V Services – Ridership Report
- B. Project V Letters of Interest Overview
- C. Comprehensive Transportation Funding Programs, Chapter 6 –
Community-Based Transit/Circulators (Project V)
- D. Project V, 2018 Call for Projects Application & Scoring Criteria

Prepared by:



Jodie McCann
Senior Transportation Funding
Analyst
(714) 560-5320

Approved by:



Kia Mortazavi
Executive Director, Planning
(714) 560-5741

Project V Services - Ridership Report

Agency	Service Description	Project V Funding	Service Type	Service Start Month/Year	Actual Rider Fare	¹ Boardings Per Revenue Vehicle Hour (B/RVH)
Costa Mesa	Local Circulator From Costa Mesa To Anaheim	\$ 2,790,638	Local Circulator	July 2017	\$0	1
Dana Point	Summer Trolley and Seasonal Shuttle	\$ 2,456,511	Seasonal Service	June 2015	\$0	16
Dana Point	Pacific Coast Highway and Special Event Trolley	\$ 905,968	Seasonal Service	June 2017	\$0	17
Huntington Beach	Holiday and Event Shuttle	\$ 93,287	Special Event	July 2015	\$0	12
Huntington Beach	Seasonal Local Transit Service	\$ 917,700	Seasonal Service	July 2017	\$0	2
La Habra ²	Local Community Circulator	\$ 1,719,839	Local Circulator	August 2014	\$1	6
La Habra	Special Event Service	\$ 96,810	Special Event	Novemeber 2016	\$0	7
Laguna Beach	Summer Weekend Trolley and Seasonal Service	\$ 3,559,860	Special Event	March 2015	\$0	34
Laguna Beach	Year Round and Seasonal Service	\$ 1,967,400	Year Round and Seasonal Service	July 2017	\$0	8
Lake Forest	Commuter Vanpool Service Irvine Station and Ossur	\$ 148,855	Commuter Service	July 2015	\$0	10
Lake Forest	Commuter Shuttle Service Irvine Station and Panasonic	\$ 1,226,862	Commuter Service	June 2017	\$0	21
Mission Viejo ³	Local Community Circulator	\$ 3,332,879	Local Circulator	October 2016	\$0	4
Newport Beach	Balboa Peninsula Seasonal Trolley	\$ 685,454	Seasonal Service	June 2017	\$0	20
County of Orange	Local Circulator and Special Event Service	\$ 2,041,547	Local Circulator and Special Event	June 2017	\$0	7
San Clemente	Summer Weekend Trolley and Seasonal Service	\$ 1,181,393	Seasonal and Special Event	May 2017	\$0	46
San Clemente ⁴	On-Demand Rideshare	\$ 914,400	Rideshare Service	October 2016	\$2+	--
San Juan Capistrano	Summer Trolley Service	\$ 95,486	Seasonal and Special Event	June 2017	\$0	18

2017 Ridership reported for the period ending September 30, 2017.

1. Rounded to the nearest whole number.
2. This service has been cancelled by the City of La Habra effective October 2017, due to low productivity.
3. The City of Mission Viejo has experienced an upward trend in B/RVH in recent months and achieved nine B/RVH in September.
4. The average ridership for this service cannot be confirmed at this time. Awaiting confirmation from the service provider, LYFT, INC.

Project V Letters of Interest Overview

Local Agency	Project Title	Type	2016 Call for Projects Project V Planning Study
Buena Park	Shuttle Service	Year-Round	No
Dana Point	Dana Point Trolley	Seasonal Expansion	No
Irvine	To Be Determined	To Be Determined	No
Laguna Beach	Summer Weekend Service	Seasonal	No
Laguna Niguel	Trolley Service	Year-Round	Yes
Mission Viejo	Local Circulator	Year-Round Expansion	Yes
Orange	Feasibility Study	Special Events	No
Placentia	On-Demand and Special Events	Pilot and Special Events	Yes
San Clemente	Trolley Service	Seasonal/Year-Round Expansion	No
San Juan Capistrano	Summer Trolley	Seasonal	No
Santa Ana	Downtown Trolley	Seasonal/Special Events	No
Tustin	Local Circulator	Year-Round	Yes
Yorba Linda	Senior Mobility Program	Senior Mobility Program Expansion from four to five days per week	No

Comprehensive Transportation Funding Programs



Chapter 6 – Community-Based Transit/Circulators (Project V)

Overview

The Measure M2 (M2) Project V - Community-Based Transit/Circulators Program establishes a competitive process to enable local jurisdictions to develop community-based local transit services that complement regional transit services, and meet needs in areas not adequately serviced by regional transit. Projects must meet specific criteria in order to compete for funding through this program. In addition, local jurisdictions will be required to demonstrate the ability to provide funding match for capital and ongoing local share of operations and maintenance using non-Orange County Transportation Authority (OCTA) resources. Public-private partnerships¹ are encouraged but not required. Local jurisdictions may partner with each other.

Regional Transit: Regional Transit services are provided by OCTA, specifically through routes 1 through 99 (and excluding those route sections that perform less than 10 boardings per revenue vehicle hour). Additional information on OCTA routes and schedules can be accessed from OCTA website at www.octa.net.

Objectives

- To provide community transit service that is safe, clean and convenient.
- To encourage new, well-coordinated, flexible transportation systems customized to each community's needs.
- To develop local bus transit services such as community-based circulators, shuttles, and bus trolleys that complement regional bus and rail service.
- To meet transportation needs in areas not served by regional transit.

¹ Public-private partnerships are defined as direct financial contributions or sponsorships for eligible program activities



2018 Call for Projects

The 2018 Call for Projects (call) for Project V will provide approximately \$12 million for community-based transit/circulators across Orange County. Specifics on the funding policies that apply to this call are identified below.

Applications

In order for OCTA to consider a project for funding, applications will be prepared by the local agency utilizing the Application Form, available electronically from OCTA. Agencies are required to submit electronic and hardcopy applications for the 2018 call for projects by **5:00 p.m. on Friday, March 23, 2018. Late submittals will not be accepted.**

Three (3) unbound hardcopies of the application and any supporting documentation must be submitted to OCTA by the application deadline, along with an electronic copy (CD, USB, or Dropbox).

Hardcopy applications should be mailed to:

OCTA
Attention: Jodie McCann
550 S. Main Street
P.O. Box 14184, Orange, CA 92863-1584

Hardcopy applications may be hand delivered to:

600 S. Main Street
Orange, CA 92868

Resolutions

A resolution or minute action must be approved by the local agency's governing body. The mechanism selected shall serve as a formal request for Project V funds and states the matching funds will be provided by the agency, if necessary. All project requests must be included in this section.

At minimum, a draft resolution must be submitted with the application by the March 23rd deadline. A final adopted resolution must be submitted to OCTA by **Friday, April 13, 2018**. A sample resolution is included in Exhibit 6-2.



Pre-Award Activities

Pre-Award Activities are allowable under Precept 6. A grantee may, at its own risk and without an executed OCTA Cooperative Agreement, obligate funds. Expenditures that are made prior to an executed OCTA Cooperative Agreement, but after July 1, of the programmed Fiscal Year (FY) must be identified in the grant application and must be submitted to OCTA for administrative approval prior to the implementation of the project.

Project Participation Categories

Transit needs may differ from one location to the next, and projects pursued under this program have significant latitude on how the challenge of delivering community-based transit will be delivered. The program categories listed below identify key project elements that can be pursued through the Project V funding source. The program categories eligible for funding through Project V are:

Planning for new service - Up to \$50,000 per agency (Not applicable to 2018 Call)

- Need for Community-Based Transit/Circulator Services
- Origin and Destination Studies
- Surveys and Marketing Research
- Development of Proposed Service Plans
- Transit Coordination Studies

Capital

- Bus and vehicle leases/purchases for the purposes of providing seasonal/special event shuttles and trolleys. If the purchase of vehicles is more cost efficient than a lease, justification and supporting documentation must be provided. Vehicle purchases will be evaluated on a case-by-case basis.
- Equipment for the deployment, implementation and use of Project V-funded services, including but not limited to:
 - Bike racks
 - Software
 - Communications equipment
 - Fare collection equipment
 - Passenger amenities
 - Americans with Disabilities Act (ADA) equipment for vehicles
- Maintenance facilities and fueling stations required for the new transit service



- Bus stop improvements (including signage, furniture and shelters) for Project V funded service stops only).

Operations and Maintenance

All costs below are subject to OCTA subsidy limitations outlined on page 6-6:

- Seasonal, fixed route, deviated fixed route, demand responsive community transit and shuttle services including administration, operations and maintenance of services.
- Transportation services provided by non-OCTA providers.
- ~~Services to be operated by OCTA. Local agencies may propose an alternative service provider which will be considered at the discretion of OCTA.~~
- Expansion of fixed-route services will only be considered if the existing service has met the minimum performance standards in the last quarter (see page 6-6). Existing OCTA led services are eligible for expansion if an alternate service provider is identified.
- Temporary off-site parking for special events subject to agreement with the property owner and approval by OCTA.
- Parking leases needed in response to expanded transit services.
- Special event shuttle services for events that will create significant congestion.
- Other flexible and innovative transit services contingent on the service plan and anticipated service performance.
- Marketing efforts including expenditures related to seasonal or special event service schedules, marketing materials such as flyers and brochures and community outreach efforts. Project V contribution for marketing will be capped at \$25,000 for the startup cost and up to \$10,000 annually thereafter for the remaining grant period.

Agencies may be awarded, from all eligible project categories, no more than \$550,000 annually for a period of three to five years per project. Funding will begin in FY 2018-19, if an agency can demonstrate project readiness, or in FY 2019-20.

Ineligible Categories

Project V funds may not be used for the following:

- Right of way acquisition
- To supplant existing transit services (subject to the Regional Transit definition in Section 1)



- Fare subsidies (Free shuttles are not considered subsidized fare for this program)
- Indirect costs
- Planning studies
- OCTA-led services

Project Requirements

All projects funded through Project V must comply with the Comprehensive Transportation Funding Programs Guidelines, unless specifically noted in the agreement with the local agency and must comply with applicable state and federal laws, including American with Disabilities Act (ADA) requirements for transit services.

Planning for New Service (Not applicable to 2018 Call)

Cities must provide a scope of work for the proposed planning document requesting Project V funds. The scope must include project need and goals and objectives for the proposed or considered service. OCTA transit planning staff must be included in the development of any planning documents funded through the Project V planning category. Planning documents must include specific recommendations for community-based transit/circulator services that can be implemented within the operating subsidy provided through Project V and must consider coordination with existing services. Plans may also consider ways to eliminate duplication of service or to improve service by combining resources. Progress on planning projects must be reported to OCTA through the semi-annual review process. Agencies will be required to submit all data and planning documents to OCTA in order to receive final payment.

Capital

Project V funding is available to offset the costs of purchasing or leasing vehicles, equipment and other amenities as described in Chapter 3, under eligible costs. Progress on capital projects must be reported to OCTA through the semi-annual review process. Agencies must inspect vehicle purchases to ensure they meet specifications prior to final acceptance and withhold retention until warranty issues and/or final acceptance is met. If vehicles are sold before the end of their useful life or if service is discontinued, agencies shall repay OCTA the same percentage of the sale price or estimated value based on straight line depreciation of asset consistent with the Project V percentage of the initial purchase.



Operations and Maintenance

OCTA has established an operating reserve as part of this program that may be used to support the costs of operations and maintenance. The operating reserve is subject to the following requirements:

- Service performance will be evaluated on a quarterly basis. The minimum performance standards are calculated by dividing boardings by the revenue vehicle hours (B/RVH) as detailed below:

Year 1	Year 2	Year 3+
Meet or exceed 6 B/RVH by end of Year 1 ²	Maintain 6 B/RVH each reporting period ³ and; Meet or exceed 10 B/RVH by end of Year 2	Maintain 10 B/RVH each reporting period

- After Year 1, services that perform below the minimum performance standard for two or more reporting periods will be evaluated for cancellation.
- As part of the Project V service, local agencies must develop strategies to measure ridership satisfaction and on-time performance and must achieve an 85% on-time performance on an ongoing basis and rider satisfaction must be 90% satisfied based on customer surveys.
- Awarded agencies must submit operations and maintenance costs and ridership and fare performance data to OCTA on a quarterly basis. The OCTA Transit Committee will be provided with summarized information from these reports on a semi-annual basis.
- The OCTA subsidy allows awarded agencies to be reimbursed on a pro-rata basis, but not to exceed \$9 per boarding or 90 percent of net operating and maintenance costs (after deducting fares and non-OCTA subsidies), *whichever is less*. The \$9 per boarding may increase annually by an OCTA-approved inflationary factor.
- Consistent with Federal law, Americans with Disabilities Act (ADA) complementary paratransit service is required for certain types of transit operations. For Project V funded services, paratransit services will be covered with Project V funds through the OCTA Board policy. Agencies receiving Project V funds may-will be required to adopt a paratransit plan prior to starting operations.

² One year from the first day of operating the Project V funded service

³ Fiscal year quarterly basis



Agency Match Requirements

Local funds are required to provide a minimum 10% non-OCTA match for all Project V components. The match may be comprised of any combination of private contributions, advertising revenues, and local discretionary funds ~~and farebox revenue~~. ~~Farebox revenue cannot be used for capital match~~. The match may not be made up of in-kind services. Capital match funding commitments in excess of ten percent are eligible for additional points. The OCTA contribution for Operations and Maintenance will not exceed \$9 per boarding, therefore actual match provided by the local agency may be greater than 10% depending on the ridership. Agency match commitments will be incorporated into the funding agreement.

Eligibility Requirements

Minimum eligibility and participation requirements must be considered before a project funding application should be submitted. Adherence to strict funding guidelines is required by the M2 Ordinance. Additional standards have been established to provide assurance that M2 funds are spent in the most prudent, effective manner. There is no guarantee that funding will be approved during a particular call for projects. If no acceptable project is identified during a funding cycle, a subsequent call for projects will be scheduled at an appropriate time.

- Applicant must be eligible to receive M2 funding (established on an annual basis) to participate in this program.
- Support recommendations from OC Transit Vision, OCTA Short Range Transit Plan, local transit planning efforts and goals of the Sustainable Communities Strategy.
- Supplement rather than supplant existing transit services and emphasize service to areas not served by transit.
- Demonstrate local share of operations and maintenance funding for specific time horizon.
- Demonstration of cost reasonableness for new bus stop improvements.
- Agency must have a financial plan outlining a funding strategy for ongoing operations and maintenance (maximum of five years).
- Local agency will be required to enter into a cooperative funding agreement with OCTA.
- All projects must include meeting ADA requirements, and these costs must be included in the project application.
- Complete applications must be approved by the city council and partner jurisdictions prior to submittal to OCTA to demonstrate adequate community and elected official support for initial consideration



- Local agencies will be required to submit appropriate National Transit Database data to OCTA or local agency's operator must submit directly to the National Transit Database.

Application Process

Project V allocations are determined through a competitive application process. Local agencies seeking funding must complete a formal application and provide supporting documentation that will be used to fully evaluate the project proposal. An application for any proposed service must include a detailed funding/operations plan.

The project application for capital and operations and maintenance shall include, at a minimum, the following information:

- Project need, goals and objectives
- Project development and implementation schedule
- Funding plan (funding needs, match funding availability, operations funding assurances, and public-private partnership arrangements)
- Ongoing service and operations plan
- Operations and maintenance facility management
- Any additional information deemed relevant by the applicant
- Ridership Projection
- Coordination with existing services such as OCTA transit services, existing Project V services, Metrolink, I-Shuttle, Anaheim Transportation Network and/or Senior Mobility Program

The project application for planning for new projects shall include a scope of work for the proposed planning document requesting Project V funds. The scope must include project need and goals and objectives for the proposed or considered service.

Complete project applications must be submitted by the established due date to be eligible for consideration.

Applications will be reviewed by OCTA for consistency, accuracy, and concurrence. For applications completed in accordance with the program requirements, the projects will be scored, ranked and submitted to the Executive Committee, and the Board for consideration and funding approval. The process is expected to be concluded by June 30, 2018.

The final approved application (including funding plan) will serve as the basis for any funding agreement required under the program. The approved projects will be subject to the Comprehensive Transportation Funding Programs (CTFP) Guidelines for project delivery requirements.



Application Guidelines

Project selection is based upon merit utilizing a series of qualitative and quantitative criteria. Candidate projects are required to submit a financial plan with sufficient data to enable an adequate evaluation of the application. Each jurisdiction is provided broad latitude in formatting, content, and approach. However, key elements described below must be clearly and concisely presented to enable timely and accurate assessment of the project.

Financial Details

Each candidate project application must include all phases through construction of facilities. The financial plan will include, at a minimum, the following information:

- Estimated project cost for each phase of development (planning, environmental, permitting, design, right-of-way acquisition, equipment and vehicle acquisition, construction, and project oversight)
- Preliminary cost estimates for operations and maintenance should be coordinated with OCTA.
- Funding request for each phase of project implementation with match funding amounts and funding sources clearly identified
- Demonstrated financial commitments for match funding and ongoing operations
- Discussion of contingency planning for revenue shortfalls
- Revenue projections and methodology where commercial activity is expected to support implementation and/or operations costs
- Project readiness status
- Realistic project schedule for each project phase

Scoring Criteria

Specific scoring criteria will be used to evaluate the competitive program project applications. Emphasis is placed on projects with firm financial commitments and overall project readiness as shown in the Project V scoring criteria. In addition, projects will be evaluated based upon ridership projections, areas served, cost effectiveness and local/regional benefits.

The formal application must include feasibility and efficacy components to demonstrate transportation benefit to ensure the selected project(s) meet the spirit and intent of M2.

Merit will be demonstrated through technical attributes and industry standard methodologies. The following data will be included and fully discussed in the application:

- Matching funds
- Level of commitment from non-applicant partners



- Operating cost per boarding for initial season or first special event
- Project readiness including initial operating period for seasonal services or special event readiness
- Projected daily boardings with projection methodology fully presented
- Community connections; connections to fixed route bus and rail
- Projected annual visitors served by seasonal route
- Community outreach
- Agency experience

Other Application Materials

Supporting documentation will be required to fully consider each project application. In addition to the information described above, local agencies will be required to submit the following materials:

Council Resolution: A council resolution authorizing request for funding consideration with a commitment of project match funding (local sources) and operating funds as shown in the funding plan.

Lease/Cost Sharing Agreements: Copies of leases, sponsorship, and/or advertising revenue documents. Confidential agreements may be included for reference when accompanied by affidavit from city treasurer or finance director.

Project Documentation: If the proposed project has completed initial planning activities (such as project study report or equivalent, environmental impact report, or design), evidence of approval should be included with the application. Satisfactory evidence includes project approval signature page, engineer-stamped site plan, or other summary information to demonstrate completion or planning phases. The applicant will be asked for detailed information only if necessary to adequately evaluate the project application.

Operations Plan: In addition to the financial details indicated in this chapter, the operations plan submitted shall include the following technical data: a route map, draft time table, headways, stop location listing, summary of vehicle types and characteristics, speed profile, fleet size, and any other applicable supporting documentation.

Reimbursements

The planning, capital, and operations and maintenance (O&M) phases are administered on a reimbursement basis. Planning, capital, and O&M reimbursements will be disbursed upon review and approval of a complete expense report, performance report, and consistent with the cooperative funding agreement. OCTA operating subsidy will be no more than Nine Dollars (\$9.00) per boarding or Ninety Percent (90%) of net operations



and maintenance costs, whichever is lower. Local agency matching commitment to OCTA for ongoing operating assistance will be in accordance with terms identified in the cooperative funding agreement.

Funds must be utilized in the programmed FY. If there are FY project savings, a transfer of funds may be requested to a subsequent FY within the project. Agencies may only use savings as an aid for unanticipated cost overruns within the approved scope of work. A transfer request must be submitted in conjunction with the final reimbursement request, and formally submitted during the Semi-Annual Review. Transfers of savings will not be done retroactively, and overall project savings are returned to the program for use in subsequent calls for projects.

Calculation of Payment

OCTA operating subsidy will be no more than Nine Dollars (\$9.00) per boarding OR Ninety Percent (90%) of net operations and maintenance costs, whichever is lower.

Example:

Sample payment calculation	
Assumptions:	
10% match	
1,500 boardings	
Net Operating Cost	\$ 20,000
Agency Match (10%)	\$ 2,000
Agency Reimbursement (90% Reimbursement)	\$ 18,000
<i>or</i>	
Net Operating Costs	\$ 20,000
\$9 x Boardings (\$9 x 1,500)	\$ 13,500
Agency Match	\$ 6,500
Agency Reimbursement (\$9 per boarding)	\$ 13,500



Net operations costs = operation & maintenance costs (after deducting fares/fees)
 Local agency minimum matching requirement to OCTA for ongoing operating assistance will be in accordance with terms identified in the cooperative funding agreement.



Project Cancellation

Projects deemed infeasible during the planning process will be cancelled and further expenditures will be prohibited except where necessitated to bring the current phase to a logical conclusion.

For vehicles owned by local agencies that were funded through Project V, if the service is discontinued, agencies shall repay OCTA for vehicles at the same percentage of the sale price, or estimated value based on straight line depreciation of asset consistent with the Project V percentage of the initial purchase.

Cancelled projects will be eligible for re-application upon resolution of issues that led to original project termination.

Audits

All M2 payments are subject to audit. Local agencies must follow established accounting requirements and applicable laws regarding the use of public funds. Failure to submit to an audit in a timely manner may result in loss of future funding. Misuse or misrepresentation of M2 funding will require remediation which may include repayment, reduction in overall allocation, and/or other sanctions to be determined. Audits shall be conducted by the OCTA Internal Audit Department or other authorized agent either through the normal annual process or on a schedule to be determined by the OCTA Board.



Exhibit 6-1

Point Breakdown & Application Checklist for Community-Based Transit/Circulators (Project V)

APPLICATION CHECKLIST	
Application materials should be submitted in the order they are listed below. Refer to the CTFP Guidelines for more detailed application requirements. Points shown are the maximum points given per category.	
Completed Application	<input type="checkbox"/>
Board/Council Resolution (Draft Permitted Initially)	<input type="checkbox"/>
Scoring Criteria – 100 Points Total	
Financial Commitment (15 Points)	<input type="checkbox"/>
Capital Match Rate	<input type="checkbox"/>
Cost Effectiveness (15 Points)	<input type="checkbox"/>
Estimated Operating Cost per Revenue Vehicle Hour	<input type="checkbox"/>
Lease/Cost Estimates & Project Backup Documentation	<input type="checkbox"/>
Project Readiness (15 Points)	<input type="checkbox"/>
Project Implementation Schedule	<input type="checkbox"/>
Planning and Environmental Documentation	<input type="checkbox"/>
Operations Plan (20 Points)	<input type="checkbox"/>
Route Map w/ Existing Transit Service	<input type="checkbox"/>
Draft Time Table & Headways	<input type="checkbox"/>
Stop Locations Identified	<input type="checkbox"/>
Average Service Speed by Time Period	<input type="checkbox"/>
Fleet Size & Summary of Vehicle Types	<input type="checkbox"/>
Maintenance Facilities Available & Service Plan Developed	<input type="checkbox"/>
Ridership Projection (5 Points)	<input type="checkbox"/>
Agree to Collect & Submit O&M Data Quarterly	<input type="checkbox"/>
Projected Average Daily Boardings (Opening Year)	<input type="checkbox"/>
Funding Plan (10 Points)	<input type="checkbox"/>
Specific Funding Needs (Per year and per phase)	<input type="checkbox"/>
Funding Assurances	<input type="checkbox"/>
Partnership Arrangements	<input type="checkbox"/>
Service Coordination Plan	<input type="checkbox"/>
Agency Experience (10 Points)	<input type="checkbox"/>
Community Benefit (10 Points)	<input type="checkbox"/>
Community/Activity Centers/Tourist Attractions Served by Project	<input type="checkbox"/>
Documented Community Support (Surveys, outreach, etc.)	<input type="checkbox"/>
Fixed-Route Bus/Rail Connections	<input type="checkbox"/>



Exhibit 6-2

Sample Resolution for Community-Based Transit/Circulators (Project V)

RESOLUTION NO. XXXX

A RESOLUTION OF THE (GOVERNING BODY) OF THE (ADMINISTERING AGENCY) APPROVING THE SUBMITTAL OF THE (PROJECT NAME) APPLICATION TO THE ORANGE COUNTY TRANSPORTATION AUTHORITY FOR FUNDING UNDER THE PROJECT V COMMUNITY-BASED TRANSIT/CIRCULATORS PROGRAM

WHEREAS, the Community-Based Transit/Circulators program (Project V) establishes a competitive process to enable local jurisdictions to develop community-based local transit services that complement regional transit services, and meets needs in areas not adequately serviced by regional transit.

WHEREAS, OCTA intends to allocate Project V funds within the incorporated cities and the County; and

WHEREAS, OCTA has established the procedures and criteria for reviewing applications as identified in the Project V Guidelines; and

WHEREAS, by formal action the (GOVERNING BODY) authorizes the nomination of (PROJECT NAME), including all understanding and assurances contained therein.

WHEREAS, the (ADMINISTERING AGENCY) has been declared by the Orange County Transportation Authority (OCTA) to meet the eligibility requirements to receive revenues as part of Measure M2; and

WHEREAS, the (ADMINISTERING AGENCY) must include all projects funded by Net Revenues in the seven-year Capital Improvement Program as part of the Renewed Measure M Ordinance eligibility requirement; and

WHEREAS, the (ADMINISTERING AGENCY) authorizes a formal amendment to the seven-year Capital Improvement Program to add projects approved for funding upon approval from the OCTA Board of Directors; and

WHEREAS, the (ADMINISTERING AGENCY's) Circulation Element is consistent with the County of Orange Master Plan of Arterial Highways; and

WHEREAS, the (ADMINISTERING AGENCY) will comply where applicable with provisions of the Americans with Disabilities Act, and any other federal, state, and/or local laws, rules and/or regulations; and

WHEREAS, the (ADMINISTERING AGENCY) will consult with OCTA regarding the need for a paratransit plan prior to starting operations; and

WHEREAS, the (ADMINISTERING AGENCY) will provide matching funds for the project as required by the Project V Guidelines and shall fund its share of the project costs and any additional costs over the identified programmed amount; and

WHEREAS, the (ADMINISTERING AGENCY) will not use Measure M funds to supplant Developer Fees or other commitments; and

WHEREAS, the (ADMINISTERING AGENCY) will give OCTA's representatives access to and the right to examine all records, books, papers or documents related to the Project; and

NOW, THEREFORE, BE IT RESOLVED THAT:

The (GOVERNING BODY) hereby requests that the OCTA allocate Project V funds in the amounts specified in the (ADMINISTERING AGENCY's) application to said (ADMINISTERING AGENCY). Said funds shall be matched by funds from the (ADMINISTERING AGENCY) as required and shall be used as supplemental funding to aid the (ADMINISTERING AGENCY) in the implementation of the proposed transit service.

PASSED, APPROVED AND ADOPTED THIS [Insert Day] day of [Insert Month], [Insert Year].



IV. Precepts

The OCTA Board of Directors (Board) approved these guidelines on March 22, 2010. The guidelines subsequently have been amended and approved by the Board as needed. The purpose is to provide procedures that assist in the administration of the CTFP under M2 where other superseding documents lack specificity. OCTA, or an agent acting on the authority's behalf, shall enforce these guidelines.

1. All eligible Orange County cities and the County of Orange may participate in the M2 competitive programs and federal funding programs included in the CTFP. Other agencies (e.g. Department of Transportation or local jurisdiction) may participate on a project, however, one local agency shall be designated as the implementing agency, shall be responsible for all funding requirements associated with the project, and shall be the recipient of funds through the program.
2. To participate in the CTFP, OCTA must declare that an agency is eligible to receive M2 Net Revenues which include local fair share distributions. Failure to meet minimum eligibility requirements after programming of funds will result in deferral or cancellation of funding.
3. The lead agency must execute a Master Funding Agreement with the OCTA. OCTA and lead agencies will periodically amend the agreement via letter to reflect funding changes through competitive calls for projects.
4. A separate cooperative funding agreement will be issued for any OCTA-led Regional Traffic Signal Synchronization Program projects.
5. An agency must have a fully executed letter agreement prior to the obligation of funds. Local agencies may be granted pre-award authority for M2 funded projects. Local agencies, at their own risk, may use this pre-award authority to obligate funds for an M2 funded project prior to the programmed year. Reimbursement Expenditures prior to the ~~will be available in the~~ Board approved programmed year will not be eligible for reimbursement (see Chapter 10).
6. For transit programs not covered by the letter agreement process (e.g. Projects S, V and W), pre-award authority is granted upon Board approval of the funding grant. See precept 5 above for pre-award authority provisions.
7. Local agencies shall scope projects, prepare estimates, and conduct design in cooperation with and in accordance with the standards and procedures required by the local agencies involved with the project (e.g., Caltrans, County, state/federal resource agencies).
8. Local agencies should select consultants based upon established contract management and applicable public contracting practices, with qualification based selection for architectural/engineering (A/E) services, and competitive bidding



PROJECT V

2018 Call for Projects Application & Scoring Criteria

APPLICATION CHECKLIST	
Application materials should be submitted in the order they are listed below. Refer to the CTFP Guidelines for more detailed application requirements. Points shown are the maximum points given per category.	
Completed Application	<input type="checkbox"/>
Board/Council Resolution (Draft Permitted Initially)	<input type="checkbox"/>
Scoring Criteria – 100 Points Total	
Financial Commitment (15 Points)	<input type="checkbox"/>
Capital Match Rate	<input type="checkbox"/>
Cost Effectiveness (15 Points)	<input type="checkbox"/>
Estimated Operating Cost per Revenue Vehicle Hour	<input type="checkbox"/>
Lease/Cost Estimates & Project Backup Documentation	<input type="checkbox"/>
Project Readiness (15 Points)	<input type="checkbox"/>
Project Implementation Schedule	<input type="checkbox"/>
Planning and Environmental Documentation	<input type="checkbox"/>
Operations Plan (20 Points)	<input type="checkbox"/>
Route Map w/ Existing Transit Service	<input type="checkbox"/>
Draft Time Table & Headways	<input type="checkbox"/>
Stop Locations Identified	<input type="checkbox"/>
Average Service Speed by Time Period	<input type="checkbox"/>
Fleet Size & Summary of Vehicle Types	<input type="checkbox"/>
Maintenance Facilities Available & Service Plan Developed	<input type="checkbox"/>
Ridership Projection (5 Points)	<input type="checkbox"/>
Agree to Collect & Submit O&M Data Quarterly	<input type="checkbox"/>
Projected Average Daily Boardings (Opening Year)	<input type="checkbox"/>
Funding Plan (10 Points)	<input type="checkbox"/>
Specific Funding Needs (Per year and per phase)	<input type="checkbox"/>
Funding Assurances	<input type="checkbox"/>
Partnership Arrangements	<input type="checkbox"/>
Service Coordination Plan	<input type="checkbox"/>
Agency Experience (10 Points)	<input type="checkbox"/>
Community Benefit (10 Points)	<input type="checkbox"/>
Community/Activity Centers/Tourist Attractions Served by Project	<input type="checkbox"/>
Documented Community Support (Surveys, outreach, etc.)	<input type="checkbox"/>
Fixed-Route Bus/Rail Connections	<input type="checkbox"/>



APPLICATION INSTRUCTIONS

Local Agencies applying for Project V funds are required to complete and submit this application. Application materials must be included in the order in which they are listed on the Application Checklist. Any projects not in compliance with the CTFP Guidelines will not be eligible for funding.

Applicant Information

Agency:	Click here to enter text.
Project Manager:	Click here to enter text.
Title / Department:	Click here to enter text.
Phone:	Click here to enter text.
Email:	Click here to enter text.
Project Title:	Click here to enter text.

Project Description

Click here to enter text.

Proposed Funding Summary

Total Project Cost:	Click here to enter text.	Capital Match Rate:	Click here to enter text.
Capital Funding:	Click here to enter text.	Level of Commitment:	Choose an item.
Operating Reserve:	Click here to enter text.	Non-Applicants:	Click here to enter text.

Proposed Funding Breakdown
 Include anticipated expenditures (i.e. Bus stops, staff time, marketing, etc.)

Capital		Operations	
<i>Expenditure</i>	<i>Anticipated Cost</i>	<i>Expenditure</i>	<i>Anticipated Cost</i>
Click to add	\$ Click to add	Click to add	\$ Click to add
Click to add	\$ Click to add	Click to add	\$ Click to add
Click to add	\$ Click to add	Click to add	\$ Click to add
Click to add	\$ Click to add	Click to add	\$ Click to add



Describe Source of Agency Funds:
 Click here to enter text.

Cost Effectiveness

Operating Cost per Boarding Opening Year:	Click here to enter text.
Annualized Operating & Capital Cost per Passenger:	Click here to enter text.

Project Readiness

Opening Year:	Select Fiscal Year
Phase Ready:	Click here to enter text.

Special Event Transit (If Applicable) (Add additional pages if needed)

Event Name	Date	Time	Location
Click here to enter text.	Select date.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Select date.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Select date.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Select date.	Click here to enter text.	Click here to enter text.

Minimum Eligibility

		YES	NO
A	Applicant is eligible to receive M2 funding:	<input type="checkbox"/>	<input type="checkbox"/>
B	Supplement rather than supplant existing transit services:	<input type="checkbox"/>	<input type="checkbox"/>
C	Projects meet ADA requirements:	<input type="checkbox"/>	<input type="checkbox"/>
D	Financial plan for ongoing operations & maintenance:	<input type="checkbox"/>	<input type="checkbox"/>
E	Project approved by Board/Council and partner jurisdictions:	<input type="checkbox"/>	<input type="checkbox"/>
F	Local funding meets minimum 10% match requirement:	<input type="checkbox"/>	<input type="checkbox"/>



Transit Usage (Provide rationale with application materials)		
Projected Average Daily Boardings 1st Year: <u>Total Annual Boardings</u> Annual Operating Days	Click here to enter text.	
Fixed-Route Bus/Rail Connections		
Number of fixed-route connections (w/in 1/4 mile):	Click here to enter text.	
Community Connections (Add additional pages if needed)		
Community/Activity Centers/Tourist Attractions Served:	Click here to enter text.	
	Click here to enter text.	
	Click here to enter text.	
	Click here to enter text.	
	Click here to enter text.	
Agency Experience (Add additional pages if needed)		
Previously Operated Service (List All Applicable)	Service	Description (Include service length)
	Service	Description (Include service length)
	Service	Description (Include service length)
Has a feasibility study been completed for the proposed service? If so, please attach the study to the application packet.		Yes <input type="checkbox"/> No <input type="checkbox"/>
Applicant is requesting Pre-Award Authority (See page 6-3 of the Guidelines for pre-award authority provisions):		Yes <input type="checkbox"/> No <input type="checkbox"/>
Additional Comments		
Click here to enter text.		

I hereby certify that the information provided herein this form is accurate and consistent with accompanying documentation. I further certify that the above information has been approved by Council resolution and that awarded funds will not be used outside of their intended purpose.

Click here to enter text.

Name (Print)

Signature

Date



M2 Delivery – Next 10 Plan Updates

Measure M2



M2 Delivery Plans



- Timeline
 - ✓ Early Action Plan - adopted in 2007 (five year plan)
 - ✓ M2020 - adopted in 2012 (20 year plan – replaced mid stream)
 - ✓ Next 10 Plan - adopted in 2016 (ten year plan)
- Accelerates projects and programs
 - ✓ Delivers improvements sooner
 - ✓ Realizes savings through lower debt / reduced escalation
 - ✓ Capitalizes on low bid environment
 - ✓ Readies projects to capture external funding



M2 Sales Tax Revenue Forecast



- Updated 2017 forecast is \$13.5 billion
 - \$700 million less than the 2016 forecast
- Most areas of M2 Plan scale to available revenue
- Freeway program doesn't scale due to set scopes
 - Net freeway program revenue loss - \$272 million
 - Net freeway project cost increase - \$90 million

MEASURE M2 Projects and Programs		
Freeway Projects		
I-5	San Joaquin Freeway Interchange Improvements	A
I-5	San Joaquin/San Diego Freeway Improvements	B C D
SR-22	Garden Grove Freeway Access Improvements	E
SR-55	Costa Mesa Freeway Improvements	F
SR-57	Orange Freeway Improvements	G
SR-91	Riverside Freeway Improvements	H I J
I-405	San Diego Freeway Improvements	K L
I-405	Freeway Access Improvements	M
All	Freeway Service Patrol	N
Street & Road Projects		
	Regional Capacity Program	O
	Regional Traffic Signal Synchronization Program	P
	Local Fair Share Program	Q
Transit Projects		
	High Frequency Metrolink Service	R
	Transit Extensions to Metrolink	S
	Metrolink Gateways	T
	Expand Mobility Choices for Seniors and Persons with Disabilities	U
	Community Based Transit Circulators	V
	Safe Transit Stops	W
Environmental Cleanup		
	Clean Up Highway and Street Runoff that Pollutes Beaches	X
Taxpayer Safeguards and Audits		
	Collect Sales Taxes (State charges required by law)	
	Oversight and Annual Audit	

M2 Next 10 Plan

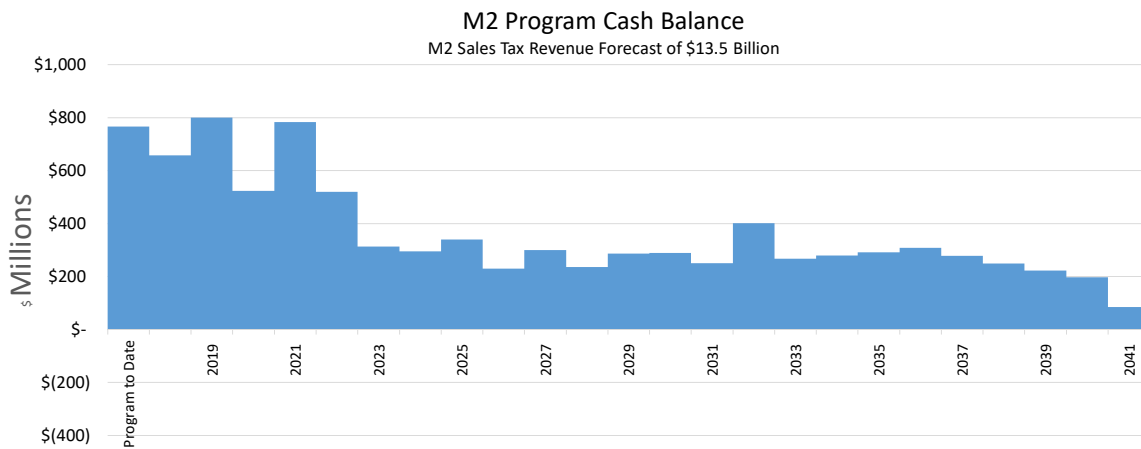


- Next 10 Plan Approved November 2016
 - ✓ Board approved use of net excess 91 Express Lanes revenue up to the full cost of two eligible 91 projects
 - ✓ Cash flow included \$463 million (partial cost only)
- Next 10 Plan - Update November 2017
 - ✓ Revised cash flow assumes \$748.7 million* in net excess revenues
 - ✓ Retains priority schedule for Project I - State Route 91 between State Route 57 and State Route 55



* 91 Express Lanes excess revenue is brought into the cash flow as costs are incurred up to full amount of the two eligible 91 projects.

M2 Program Cash Balance



*Based on June 2017 M2 Sales Tax Revenue Forecast of \$13.5 Billion and use of \$748 million of 91 Express Lanes revenues

Next 10 Deliverables Summary



- Freeway Program Deliverables:
 1. Deliver \$3.1 billion of freeway improvements scheduled through construction
 2. Invest approximately \$1.2 billion more in revenues bringing the completed freeway program improvements to \$4.3 billion. Project I is a priority.
- Allocate nearly \$1 billion of funding for streets and roads
- Invest approximately \$1 billion to enhance access to rail and transit including delivery of the OC Streetcar
- Ensure ongoing preservation of open space preserves and provide \$40 million in water quality grants



Seven Risk Factors

- Sustained low unemployment
- Increases in residential construction
- Consolidation in the public works construction industry
- Increases in interest rates
- Neighboring County transportation construction programs
- Construction wage pressure
- Future recession



Near Term Cost Risks

- Neighboring County Transportation Construction Programs

Southern California Regional Construction Costs 2016-2025 Period Freeways and Transit (\$'s shown in billions)	
Los Angeles	\$47.7
San Bernardino	\$11.9
Riverside	\$10.0
Orange County Measure M (Next 10 Projects) Total	\$ 4.8

- Construction Wage Pressures

County	Construction Wage, % annual growth	
	2012-2014	2014-2016
Los Angeles	1.97%	4.53%
San Bernardino	0.49%	4.61%
Riverside	2.36%	5.30%
Orange	1.34%	4.39%

- Sustained Low Unemployment
- Increases in Residential Construction

Cost Mitigation Recommendations



- Monitor early warning indicators
 - ✓ Building permits
 - ✓ Construction employment and wages
 - ✓ Executive opinion of local economy
 - ✓ Construction commodity costs
- Continue to be a preferred client for public works construction companies
- Look for acceleration opportunities for Next 10 Delivery Plan



9

Next Steps



- Distribute the Updated Next 10 Plan to local jurisdictions and stakeholders
- Work with our transportation partners to seek cost saving measures on delivery of the Next 10 Plan of projects and programs
 - ✓ Identify lower cost alternative options as freeway projects advance through project development for OCTA Board of Directors consideration
- Monitor the risk associated with the changing environment and return to the Board with updates as appropriate



10



AGENDA

Technical Advisory Committee

Item #4

Systematic Safety Analysis Report (SSAR)

OCTA SYSTEMIC SAFETY PLAN



CONTACT: Paul Martin
Active Transportation Coordinator
(714) 5560-5386
pmartin@octa.net

Fact sheet as of 11/8/17

WHAT

The Orange County Transportation Authority (OCTA) has successfully obtained funding to develop a Systemic Safety Plan (SSP) as part of an on-going effort to improve transportation safety in Orange County.

This data-driven plan is being developed to strategically improve safety for people walking and bicycling in communities throughout the County. The plan will use collision and roadway data to evaluate the current transportation system for conditions that place bicyclists and pedestrians at risk. It will identify “hot spot” historical patterns, and then learn key lessons from those patterns to apply to similar locations proactively. The project will also develop a toolkit of engineering, education, and enforcement countermeasures to reduce or eliminate bicycle and pedestrian crashes, targeted to the key needs in Orange County. Finally, the SSP will create a “how to guide” for local jurisdictions to apply for safety-related project funds, and identify prototypical and demonstration projects to support the project development process.



This project will build upon existing safety programs and recent infrastructure planning efforts, and will use infrastructure data that has been collected recently on sidewalk locations as well as available multi-modal traffic data.

WHY

The Office of Traffic Safety (OTS) ranks all 58 California counties in terms of their traffic safety record across a variety of metrics. In many of these areas, Orange County ranks well. For example, the rate of collisions involving underage DUI is among the lowest in the state. However, Orange County ranks high in terms of speed-related injuries and fatalities (7th) and total traffic injuries and fatalities (8th). The County also ranks near the top (16th) in the rate of injuries for bicyclists under the age of 15.

Land use patterns and transportation infrastructure in Orange County have developed somewhat more uniformly and according to established plans and specifications than many other California counties. This uniformity lends itself to a systemic approach to safety by tying safety features to standard roadway designs, and will be the foundational strategy for this SSP.

HOW YOU CAN HELP

A project development team will meet five times in 2017 and 2018 as the report is prepared. Staff working on crash reduction projects and Highway Safety Improvement Program (HSIP) pursuits are invited to attend.



Orange County Transportation Authority

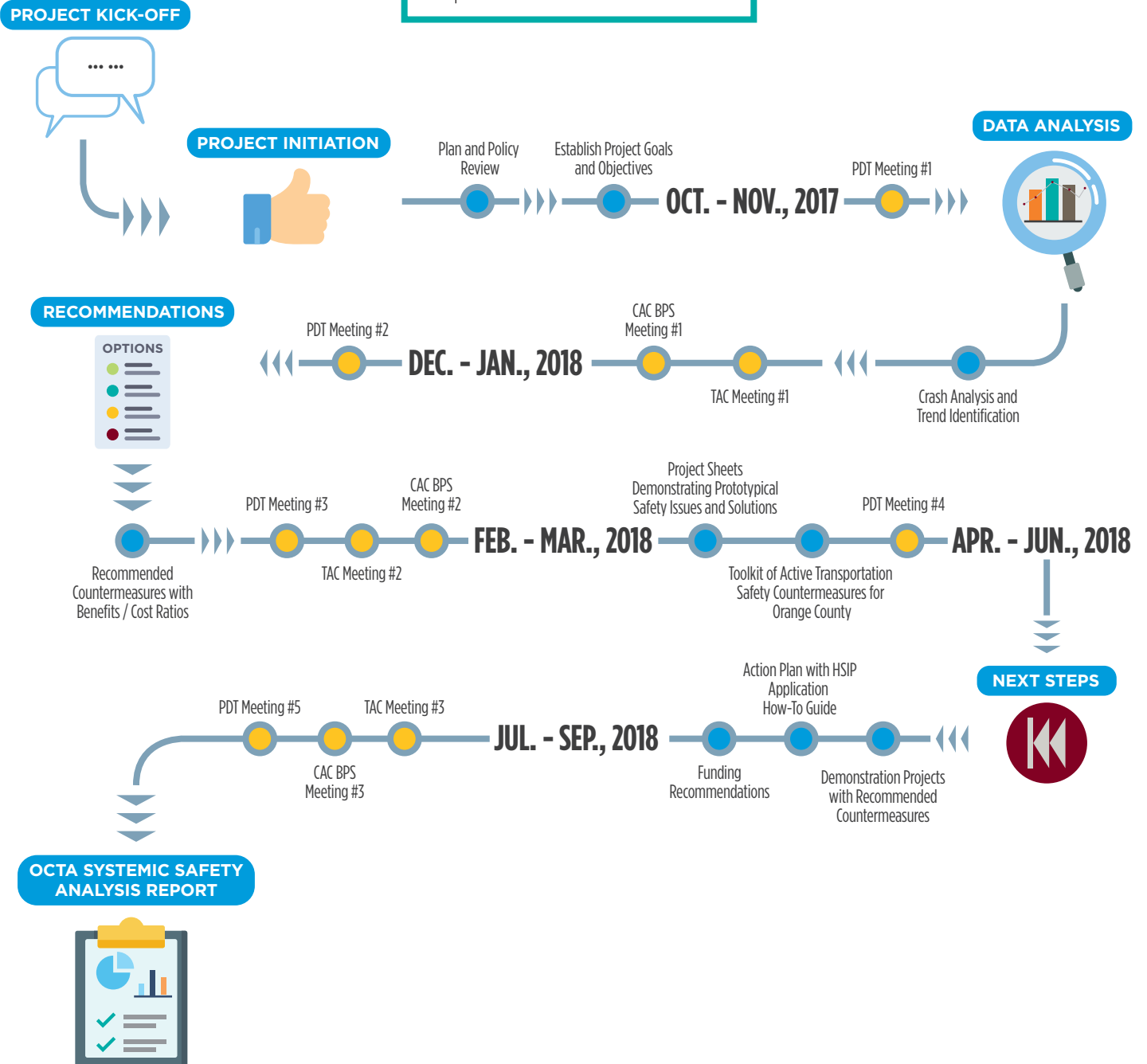
550 S. Main St
P.O. Box 14184
Orange, CA 92863-1584
(714) 560-OCTA
www.octa.net

OCTA SYSTEMIC SAFETY PLAN

PLAN ELEMENTS AND SCHEDULE

**K
E
Y**

PDT: Project Development Team
CAC: Citizens Advisory Committee
BPS: Bicycle/Pedestrian Subcommittee
TAC: Technical Advisory Committee



SYSTEMIC SAFETY PLAN (SSP)

Project Goal: Improve safety and reduce the number and severity of collisions involving people walking and bicycling in Orange County.

Project Objectives:

- Objective 1: Guide investment towards active transportation collision reduction, including in communities with high needs.
- Objective 2: Assist local agencies to identify safety projects for HSIP and other active transportation funding sources.
- Objective 3: Increase knowledge and expertise by local jurisdictions to implement established countermeasures.
- Objective 4: Ensure policies, standards and procedures foster a culture of safety in the planning and design of the transportation system.

The project goals will be achieved by using the following technical process:

- Use systemic data-driven analysis to categorize collisions by intersection and roadway size and type.
- Determine local applicability for proactive implementation of countermeasures.
- Coordinate between state, regional, and local jurisdictions.
- Examine the relationship between communities of concern and active transportation collisions.

OCTA Systemic Safety Plan

*OCTA Technical Advisory Committee (TAC)
February 28, 2018*



Project Overview

- Data-driven approach to improving walking and biking safety throughout Orange County
- State-funded through Caltrans Systemic Safety Analysis Report Program (SSARP)
- A proactive approach to looking at collision data
- Deliverable will be a countermeasure toolkit and “how-to” grant application guide for local jurisdictions

Goals & Objectives

Project Goal

Improve safety and reduce the number and severity of collisions involving people walking and bicycling in Orange County

Objectives

1. Guide investment towards collision reduction
2. Assist local agencies
3. Increase local knowledge and expertise
4. Foster culture of safety

3

Stakeholder Engagement

Local staff and other stakeholder involvement through:

- 2 Technical Advisory Committee (TAC) meetings
- 5 Project Development Team (PDT) meetings
- 3 Citizens Advisory Committee (CAC) meetings

4

Scope of Work



Scope of Work

Project Initiation

Sept 2017 – Dec 2017

- Plan & Policy Review
- Project Goals & Objectives



Stakeholder Engagement

Sept 2017 – Dec 2018

- TAC, PDT, & CAC BPS Meetings

Scope of Work

Data Analysis

Oct 2017 – May 2018

- Crash Data Analysis
- Roadway Analysis
- Issues Identification

Recommendations

Apr 2018 – Sept 2018

- Infrastructure Recommendations
- Non-Infrastructure Recommendations
- Benefit/Cost Ratio Calculations
- Template Project Sheets
- Best Practices Toolkit

7

Template Project Sheet Examples

05 | FIRST STREET

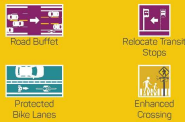
DATE: FEBRUARY 2018 (MAY 2018)

SOLUTIONS



PROJECT DESCRIPTION

The recommendations respond to the prevalence of both pedestrian and bicycle collisions along this corridor. Frequent at all location types (signalized intersections, unsignalized intersections, and mid-block).



CONSISTENCY CONSIDERATIONS

If it can be demonstrated that proposed lane assignments can accommodate existing and future volumes, temporary reconfiguration may be permitted. Board concurrence is required to grant exceptions due to overriding and documented safety concerns.

COST ESTIMATE

\$4,188,900

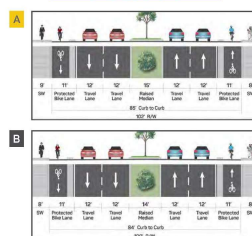
One-Way Protected Bike Lanes	\$ 1,188,000
Rectangular Plaque Flashing Beacon	\$ 44,200
Roadside Lighting	\$ 30,000
Transit Stop	\$ 23,000
Traffic Signal Modification	\$ 250,000
Median Narrowing and Installation	\$ 150,000
Curb and Gutter	\$ 326,900
Engineering	\$ 418,890
Plan, Permit/Superintendence	\$ 418,890
Contingency	\$ 558,900

EXPECTED BENEFIT/COST RATIO

22.02

Calculated using 2018 data and 2018 data based on the 2018 TRB report, the FHWA Cost Calculator. The benefit of 22.02 is based on the average of magnitude and volume of collisions along the corridor. The magnitude of collisions will be corrected for project length (0.6 miles). Only collisions with a severity of 1 or 2 are included in the calculation of the intersection-related collision reduction factors.

CROSS SECTIONS



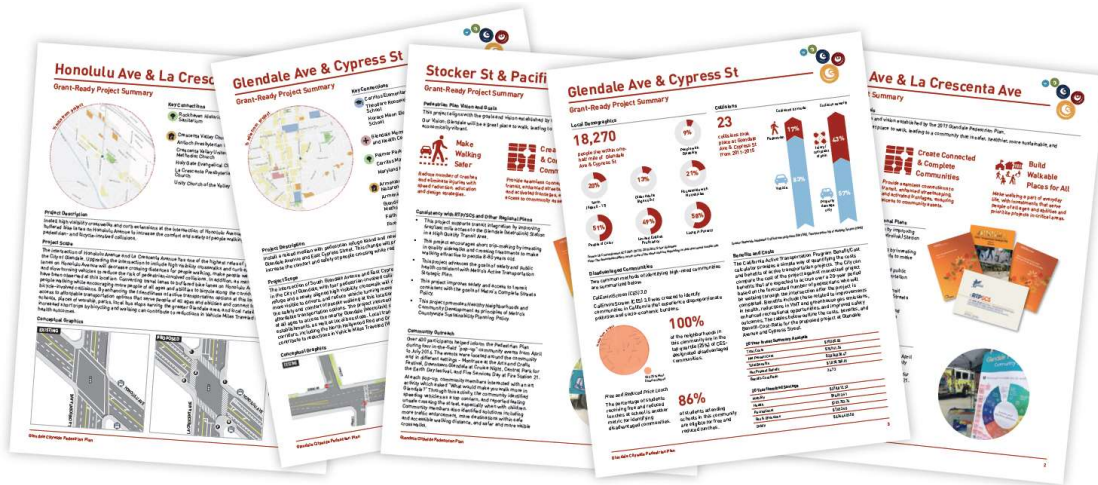
Goals:

Identify potential countermeasures that could be applied at multiple locations throughout the County

Position local jurisdictions for successful HSIP/other grant pursuits

8

Template Project Sheet Examples



Scope of Work

Final Steps

Sept 2018 – Dec 2018

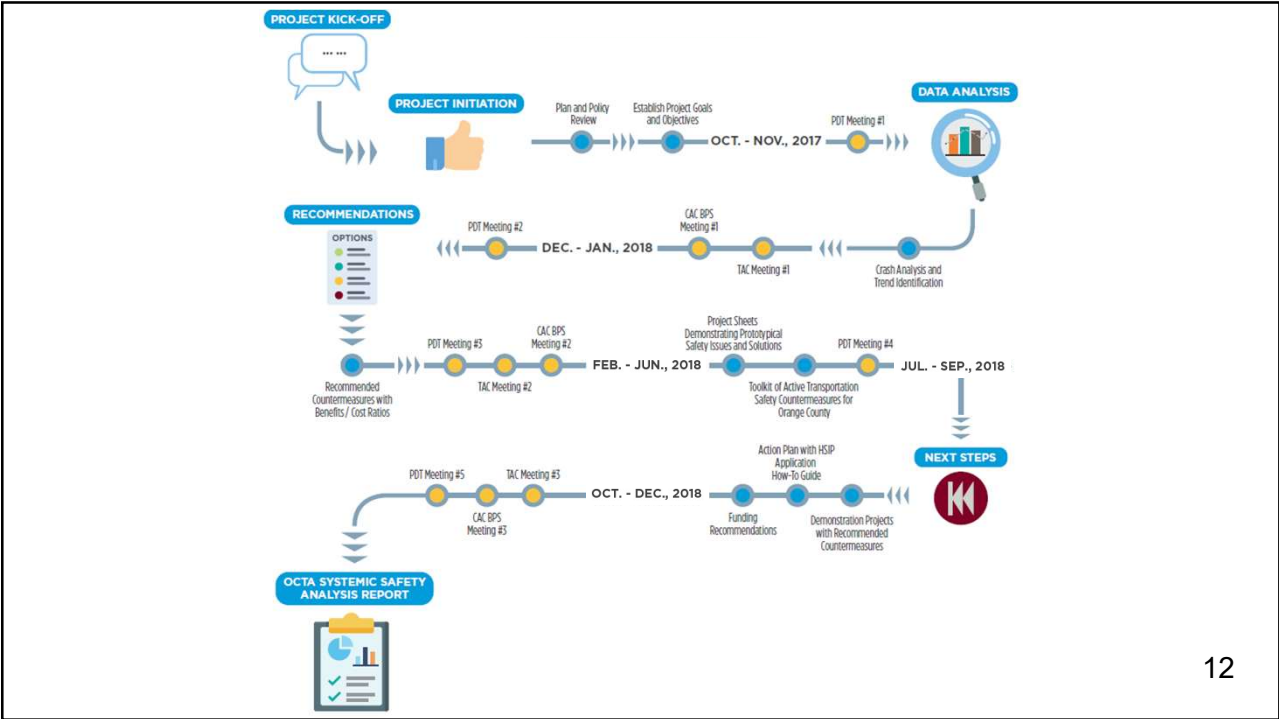
- Demonstration Project Identification
- Action Plan
- Funding Recommendations

Summary Report

May 2018 – Dec 2018

- Draft & Final Report

Project Schedule



Thank you!

Questions?





AGENDA

Technical Advisory Committee

Item #5

Countywide Pavement Management Plan Guidelines Update



February 28, 2018

To: Technical Advisory Committee
From: Orange County Transportation Authority Staff
Subject: Countywide Pavement Management Plan Guidelines Updates

Overview

The Countywide Pavement Management Plan Guidelines were approved by the Orange County Transportation Authority Board of Directors on May 24, 2010, and subsequently revised in 2012, 2015, and 2016, consistent with requirements in the Measure M2 Ordinance. New, minor updates to the Countywide Pavement Management Plan Guidelines are presented for review and recommendation for approval.

Recommendation

Recommend Board of Directors approval of proposed revisions to the Countywide Pavement Management Plan Guidelines.

Background

In 2006, Orange County Transportation Authority (OCTA) staff conducted a countywide assessment of existing and future pavement needs and developed uniform criteria for local pavement management plan systems. On May 24, 2010, the Board of Directors (Board) approved the Countywide Pavement Management Plan Guidelines (Guidelines) to develop a consistent methodology for local agencies to report pavement conditions.

The Guidelines are provided to evaluate countywide pavement conditions, monitor changes in pavement conditions, anticipate expected improvements, and verify compliance with the Measure M2 Ordinance. Minor revisions, including the addition of a Pavement Management Plan (PMP) submittal template, have been made to the Guidelines to reflect lessons learned by staff since the initial adoption. Per the Guidelines, Local agencies are required to adopt and biennially update a PMP as part of the Eligibility Requirements to receive Measure M2 Net Revenues. The PMP submittal template was implemented to facilitate this process for both local agencies and OCTA.

Discussion

OCTA staff identified areas of improvement in the Guidelines, which are presented to the Technical Advisory Committee (TAC) for discussion.

Recommended adjustments include:

- Modified criteria for prequalification/calibration of inspectors to ensure consistency and accuracy in the evaluation of pavement conditions and to better reflect actual desired performance of field inspectors. The changes in the criteria are expected to expand the list of pre-qualified inspectors.
- Deleted Appendix A – PMP Agency Checklist, and replaced it with the Pavement Management Plan Template.
- Implemented the Countywide Pavement Management Plan (PMP) agency submittal template as a required submittal.

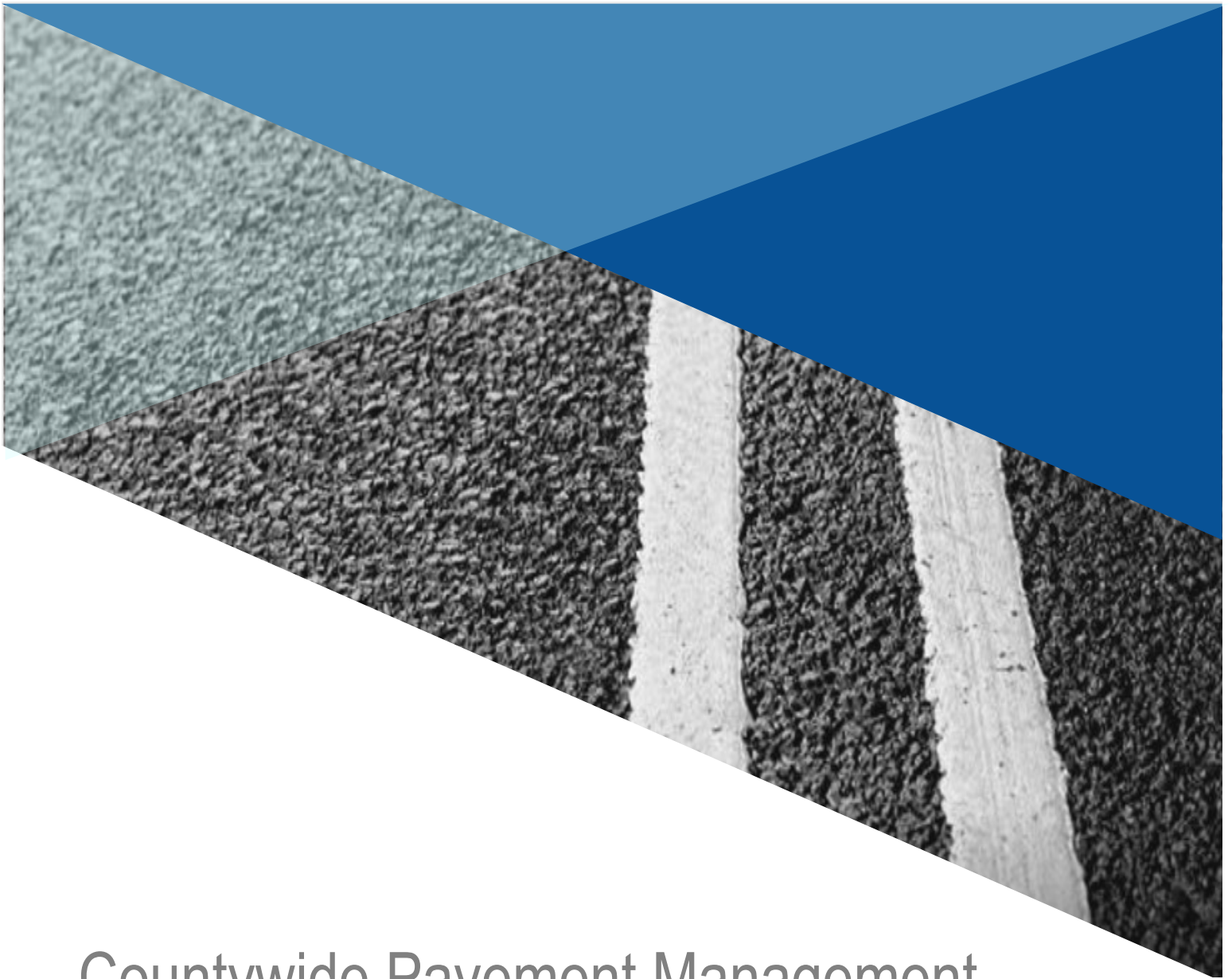
Additional minor revisions (in track changes) were made to the PMP Guidelines and certification form for internal consistency.

Summary

The Guidelines are established to provide a consistent method to receive comparable data, determine current road pavement conditions, and anticipated future needs. Minor modifications to the Guidelines are presented to reflect experience gained from previous pavement management plan submittals.

Attachment

- A. Draft – 2018 Countywide Pavement Management Plan Guidelines



Countywide Pavement Management

Plan Guidelines

April 2018





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APPENDICES

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Appendix B – Prequalified Pavement Inspection Consultants and Local Agencies B-1
Appendix C – Recommendations for Pavement Inspectors C-1



Chapter 1 – Introduction

On November 6, 1990, the voters in Orange County approved a ½-cent sales tax for transportation improvements known as OC Go, formerly known as Measure M2. This sales tax includes funding for streets and roads that is available to local agencies through both a formula distribution and a competitive process. On November 6, 2006, voters approved a renewal of OC Go to continue the ½-cent sales tax for thirty years, beginning in 2011.

Background

The primary goal of these guidelines is to ensure consistent field data collection and reporting procedures so that countywide funding allocations can be based on agency comparable pavement conditions.

Given that all agencies are using uniform data collection procedures, OCTA can answer typical questions such as:

- What is the average countywide condition of local streets and roads? For individual streets? For Arterial Highways?
- Which streets have a higher priority and need to be funded first?
- How much does it cost to bring them up to an acceptable condition?
- How much will it cost to maintain them in an acceptable condition over the next seven years or more?
- What are the impacts on pavement condition at the existing funding levels?

Training is provided, periodically, by OCTA to maintain consistency in data collection procedures and assist local agencies in the use of pavement management software.

The key is to ensure a reliable, consistent, and uniform approach to data collection.



Eligibility Requirements

One of the eligibility requirements included in OC Go specifies that each local jurisdiction must adopt and update a Pavement Management Plan (PMP) every two years. All agencies must use a common format as part of the countywide pavement management effort conforming to American Society for Testing and Materials (ASTM) Standard D6433. In 2010, the Orange County Transportation Authority (OCTA) adopted MicroPaver as the countywide standard PMP software and all agencies participating in OC Go were required to adopt this software for consistency in reporting pavement management conditions. In 2011, all local agencies submitted PMPs that were in conformance with the requirements in the PMP Guidelines. Local agencies may now also utilize StreetSaver, since it is in conformance with ASTM Standard D6433. The PMP must include:

- The current status of road pavement conditions;
- A seven-year plan for road maintenance and rehabilitation (including projects, funding, and any unfunded backlog of pavement needs);
- The projected pavement condition resulting from the maintenance and rehabilitation plan; and
- Alternative strategies and costs necessary to improve road pavement conditions.

Local Match Reduction

In addition to the above requirements, a local agency match reduction of 10% of the eligible cost for projects submitted for consideration of funding through the Comprehensive Transportation Funding Programs (CTFP) call for projects is available if the local jurisdiction either:

- a. Shows measurable improvement of paved road conditions during the previous reporting period defined as an overall weighted (by area) average system improvement of one Pavement Condition Index (PCI) point with no reduction in the overall weighted (by area) average PCI in the Master Plan of Arterial Highways (MPAH) or local street categories;

or

- b. Road pavement conditions during the previous reporting period within the highest 20% of the scale for road pavement conditions in conformance with OCTA Ordinance No. 3, defined as a PCI of 75 or higher, otherwise defined as in "good condition".



Chapter 2 – Pavement Management Plan Guidelines

These guidelines and procedures are necessary for Orange County agencies to implement and update their PMPs with respect to conducting condition surveys. This is required to certify conformance with the criteria stated in OCTA’s Ordinance No. 3. This ordinance requires that a PMP be in place and maintained to qualify for an allocation of net revenues generated from OC Go. A copy of Ordinance No. 3 is available from OCTA. PMP Certification is part of the submittal required for each agency (see Appendix A).

The pavement management guidelines are discussed under the following categories:

1. Condition Survey Protocols
2. Inspection Frequency
3. Countywide Assessment Standards
4. Quality Assurance/Quality Control (QA/QC) Plan
5. Re-inspections
6. Prequalification/Calibration of Inspectors
7. Pavement Management Software Training
8. Pavement Management Data Files

Condition Survey Protocols

In 1998, OCTA adopted condition survey protocols that required the collection of certain surface distresses as a minimum for both asphalt concrete and Portland cement concrete pavements. These distresses were common to the variety of pavement management systems then in use by Orange County local agencies. Based on the usage of a common county-wide software, it is now possible to include all of the distresses in ASTM Standard D6433 “Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys” in these Guidelines. These surface distresses are as follows:

Asphalt Concrete (AC)

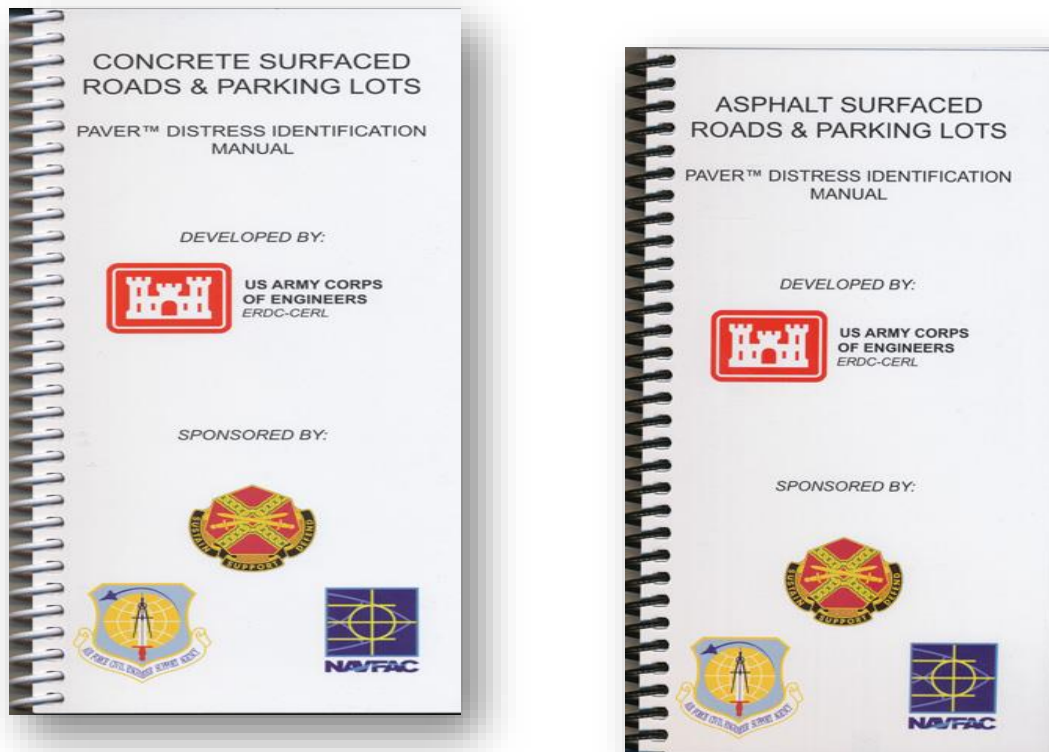
1. Alligator or Fatigue Cracking
2. Bleeding
3. Block Cracking
4. Bumps and Sags
5. Corrugation
6. Depression
7. Edge Cracking
8. Joint Reflection Cracking
9. Lane/ Shoulder Drop-off
10. Longitudinal Cracking
11. Patching and Utility Cut Patching
12. Polished Aggregate
13. Potholes
14. Railroad Crossing
15. Rutting
16. Shoving
17. Slippage Cracking
18. Swell
19. Raveling
20. Weathering (Surface Wear)

Portland Cement Concrete (PCC)

1. Blowup/ Buckling
2. Corner Break
3. Divided Slab
4. Durability (“D”) Cracking
5. Faulting
6. Joint Seal Damage
7. Lane/ Shoulder Drop-Off
8. Linear Cracking
9. Patching, Large And Utility Cuts
10. Patching, Small
11. Polished Aggregate
12. Popouts
13. Pumping
14. Punchout
15. Railroad Crossing
16. Scaling
17. Shrinkage Cracks
18. Spalling, Corner
19. Spalling, Joint

The distress definitions, severity levels, and measurement methods are based on criteria described in Pavement Management for Airports, Roads and Parking Lots¹. This reference has been formalized as ASTM Standard D6433². ASTM's copyright does not allow for electronic distribution or copying of this standard. However, a link to purchase the standard is included in the footnote. OCTA's guidelines follow ASTM D6433, with a few minor exceptions.

In addition, field manuals are available from the American Public Works Association (APWA)^{3,4}. The field manuals include photographs of distress types and detailed descriptions and definitions, and are intended for the field inspector. All personnel involved with inspection or performing condition surveys must have read and understood these manuals.



Note that both ASTM D6433 and these field manuals contain 20 distresses and 19 distresses for AC and PCC pavements, respectively. These distresses are now required for data collection.

OCTA allows windshield, walking, and calibrated automated surveys. It is recommended that windshield surveys be supplemented with walking surveys.

¹ Shahin, M.Y. *Pavement Management for Airports, Roads and Parking Lots*, Chapman & Hall, 1994.

² ASTM D6433 – *Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys*. A copy may be purchased at <http://www.astm.org/Standards/D6433.htm>.

³ *Paver Distress Identification Manual: Asphalt-Surfaced Roads and Parking Lots*, U.S. Army Corps of Engineers, Construction Engineering Research Laboratories, June 2009. To purchase, go to www.apwa.net.

⁴ *Paver Concrete Distress Identification Manual: Concrete Surfaced Roads and Parking Lots*, U.S. Army Corps of Engineers, Construction Engineering Research Laboratories, June 2009. To purchase go to www.apwa.net.

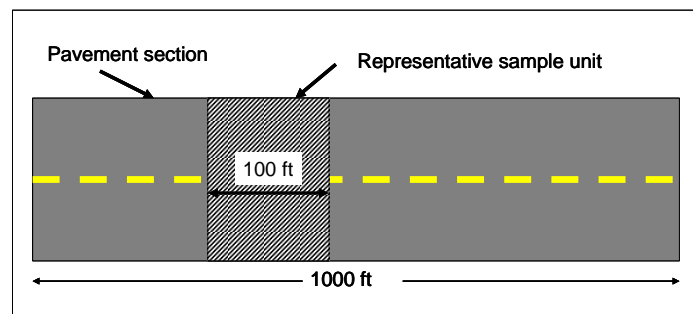
In a windshield survey, the inspector travels in a vehicle at slow speeds (5 to 10 mph) and observes the pavement condition from within the vehicle. The entire length of the pavement section is driven and observed. A driver is required for safety reasons, with the inspector/recorder in the passenger side of the vehicle. The inspector should have a list of street sections to be surveyed and a planned route.

The entire pavement section is surveyed and the distress data are estimated and recorded. In situations where the distresses need closer examination, or where there are difficulties in observation, the inspector should stop the vehicle and walk the pavement section to verify the distresses observed from the vehicle.

All field data collection procedures should conform to the local agency's safety practices and should be included in the QA/QC Plan (see Appendix A).

When walking surveys are used, the following procedure should be followed:

1. Each pavement section must be inspected using sample units. Individual sample units should be representative of the pavement section conditions, and may be marked or identified to allow easy location for quality control purposes. Paint marks along the edge or sketches with locations connected to physical pavement features are acceptable. The figure below illustrates the definition of a pavement section and a representative sample unit.



2. The area of AC sample units should be 2500 ± 1500 square feet, and for PCC sample units, this should be 20 ± 8 slabs. The total inspected area or slabs for a pavement section must be at least 10% of the total pavement section area or slabs. This is an exception to the procedure described in ASTM D6433.

For example, a pavement section 950 feet long and 32 feet wide must have at least one sample unit (typically 100 feet long x 32 feet wide = 3200 sf). Longer sections will require multiple sample units.

3. Additional sample units are to be inspected only when non-representative distresses are observed. Typically, these will be distresses that are localized in nature and not representative of the entire pavement section e.g. high severity alligator cracking found near bus pads, rutting in intersections, distresses due to landscape watering/ponding etc.
4. Conduct the distress inspection by walking on the pavement shoulder or sidewalk adjacent to the sample unit being surveyed, measuring the quantity of each severity level of every distress type present, and recording the data. Each distress must correspond in type and severity to that described in the Paver Distress Identification Manuals.



5. A copy of the recorded distress data should be provided on a weekly basis to the responsible agency personnel for quality assurance.

It should be noted that windshield surveys, while reasonably fast and inexpensive, do have shortcomings. Chief among these are that low severity distresses are difficult to identify in this procedure, and consequently, the PCI may be significantly higher than it ought to be. A pavement may therefore be selected for a slurry seal when a thin overlay is more appropriate or for a thin overlay when a thick overlay is more appropriate. This may result in treatments that are not cost-effective.

When certain pavements are a high priority (usually those with high traffic volumes or other distinctive features) for a local agency, walking surveys are preferred to ensure that all pertinent distresses are captured, although windshield surveys are the minimum standard. For residential or local streets, windshield surveys are acceptable.

When automated or semi-automated surveys are used, the following procedure should be followed.

The Local Agency should:

- Establish a series of test sites
- Determine the distress data on those sites using a walking survey
- Compare the data from the automated equipment with the walking survey data.

It is desirable for the PCI values from the automated survey to be within plus or minus 5 PCI points of the values obtained from the walking survey. However, plus or minus 10 PCI points is generally considered acceptable. Any site with a difference greater than 10 PCI points should be carefully rechecked to determine the cause for the discrepancy. The agency must then make a judgement whether the automated data is acceptable.

OCTA's role is limited to the evaluation of the distress data submitted by the agencies and does not include a verification or evaluation of the automated equipment or procedure used by the agency submitting the automated survey.

Inspection Frequency

All streets identified on the MPAH must be surveyed at least once every two years. All local streets must be surveyed at least once every six years. This is a requirement of OCTA's PMP certification program.



Countywide Assessment Standards

In 1998, OCTA adopted the countywide pavement condition assessment standards for treatments as shown in Table 2.1.

Table 2.1 Pavement Condition Assessment Standards

Pavement Quality	PCI Thresholds	Funded Treatment
Very Good	86-100	None
Good	75-85	Surface seal*
Fair	60-74	Thin overlay
Poor	41-59	Thick overlay
Very Poor	0-40	Reconstruction

* Not eligible for CTFP competitive funding program

Note that Table 2.1 does NOT preclude other treatments that a local agency may choose to select or use. Indeed, there have been many new pavement technologies and techniques introduced since 1998 that a local agency should consider for preventive maintenance, and which may be funded under the M2 Fair Share program. **The treatments in Table 2.1 are intended to identify the types of treatments that OCTA will fund under the competitive grant program only.**

Quality Assurance/Quality Control (QA/QC) Plan

A QA/QC plan must be prepared by all agencies. The purpose of the QA/QC plan is to ensure that all procedures used to collect distress data comply with OCTA’s guidelines and result in the delivery of a quality data product. The QA/QC plan should also provide for corrective actions when deficiencies are encountered. As a minimum, the following components must be included:

- a. Description of condition survey procedures (distress types, severities) or reference to the relevant documents in Chapter 3. All procedures, changes or modifications should be well documented in the QA/QC plan so that future updates will be consistent. In particular, unique situations are especially important and their documentation should be included.
- b. How data will be collected (windshield, walking, automated or combination of methods).
- c. Accuracy required for data collection.
- d. Description of how data will be checked for accuracy by agency e.g. re-inspections.
- e. Schedule for when data will be submitted to local agency staff.
- f. Experience of inspectors including past training on condition surveys or calibration procedures.
- g. Field data collection safety procedures.

Any findings that may compromise data integrity and consistency should be discussed and



corrected. Examples of these include differences in survey methods from the last update (e.g. changing from windshield to walking surveys), collecting additional distress types and unique situations that may not lend themselves to existing condition survey procedures (e.g. gap-graded mixes, edge cracking with unpaved shoulders).

Prior to performing any work, local jurisdictions must review the QA/QC plan with inspection personnel.

A copy of the QA/QC plan must be submitted to OCTA together with the PMP certification.

Re-inspections

As part of any QA/QC process, it is essential to re-inspect portions of the network with different personnel than those performing the condition surveys. Re-inspections should be performed within one month of the original date of collection as pavement data will change with time, and during the winter, may change very rapidly.

The data to be re-inspected should include distress types, severities and quantities collected during the survey. At least 5% of the pavement sections should be re-inspected.

The selected sections for re-inspections should be representative of the local agency's network. This should include sections from:

- All functional classifications (i.e. MPAH and residential/local)
- All surface types (i.e. AC and PCC)
- Entire range of pavement conditions (i.e. good, fair, poor)
- All significant changes in PCI (i.e. sections with more than ± 10 PCI points a year with no plausible explanations should be targeted for re-inspections)
- All inspectors
- Different geographical areas

Acceptability Criteria

In general, inspectors should identify distress types accurately 95% of the time. Linear measurements should be considered accurate when they are within $\pm 10\%$ if re-measured, and area measurements should be considered accurate when they are within $\pm 20\%$ if re-measured.

For the data to be acceptable, 90% of the re-inspected sections must be within ± 10 PCI points.

If the results of the re-inspections do not meet the above criteria, all inspections should be immediately halted and any differences should be identified and discussed. Corrective actions should be taken immediately. The local jurisdiction should then perform re-inspections of an additional 5% of the pavement sections.

Prequalification/Calibration of Inspectors

Prequalification or calibration of inspectors ensures that proper procedures are followed and that the results obtained are within acceptable variability ranges. This will be implemented by OCTA staff.

Briefly, the procedures to prequalify or calibrate inspectors are as follows:

- a. OCTA will select approximately 20 pavement sections to be used as control or test sites. Collectively, the control sites should exhibit common distress types and levels of severity that will be encountered in the pavement network and should be across all functional classes, pavement age, surface type, pavement condition and distresses.
- b. Inspect the sections manually (walking survey) using at least two different experienced inspectors and the established survey protocols (Appendix A and ASTM D6433), including any modifications. This will establish the baseline PCI for each control section.
- c. The candidate inspectors should then survey the same pavement sections within one month of the control surveys established in Step (b). The data for the sections should be collected and submitted to OCTA as soon as they are completed.
- d. OCTA will calculate the PCIs based on the survey data collected by inspectors.
- e. Compare the control PCI data with survey results by candidate inspectors. Identify the differences and areas of ~~consistency improvement~~ variability.

Acceptability Criteria

The criteria for acceptability are:

- a. $nRMSE \leq 1.04$ where:

$$nRMSE = \sqrt{\frac{\sum_{i=1}^n \left(\frac{RPCI_i - BPCI_i}{SD_{PCI}} \right)^2}{n}}$$

Where:

nRMSE = Normalized root mean square error or deviation

RPCI_i = Reported PCI for control section i

BPCI_i = Baseline PCI for control section i

n = Number of control sections

and

$$SD_{PCI} = \frac{100 - BPCI}{3.6}$$

- b. Inspectors that obtain nRMSE values higher than 1.04 will be allowed to re-inspect and re-submit PCI values for three control sections. OCTA will indicate the three control sections where the inspectors showed the highest deviations from the baseline survey. Re-inspections are allowed only once. The normalized root mean square error (nRMSE) will be recalculated and the criteria described at point (a) applied.

- c. All inspections must be performed independently by each inspector.
- d. Inspectors will be individually prequalified
- e. At least one inspector of a consultant firm or local agency staff must be prequalified for a submitted Pavement Management Plan to be considered compliant with these Guidelines.

Pavement Management Software Training

Local agencies may utilize either MicroPAVER or StreetSaver® software for their PMPs, as long as they conform to ASTM D6433 and these guidelines. At least one representative of the local jurisdiction must be familiar with the PMP software utilized, and have attended one training class. In the case of MicroPAVER, training classes are conducted regularly. The American Public Works Association (APWA) conducts “hands-on” MicroPAVER training classes for a fee, at least once a year (see www.apwa.net for more information). Web-based training programs on specific modules are also available for a fee and broadcast schedules are periodically posted on the APWA website.

The Metropolitan Transportation Commission (MTC) provides free training classes on their StreetSaver® software program as well as field condition surveys. Typically, two field training classes are conducted annually; one in Northern California and one in Southern California (see www.mtcpms.org for more information). There are enough similarities between StreetSaver’s and MicroPAVER’s condition surveys that this training class will benefit any inspector new to the process.

OCTA offers limited software and field training focusing on those items to be included in the biennial PMP submittals. This training is sufficient to satisfy the training requirement of these Guidelines.

Pavement Management Data Files

The Pavement Management data files shall be submitted to OCTA in spreadsheet format. This must include the following information:

- Street name and limits for all public streets
- Street identifiers (Branch ID, Section ID)
- Direction (if applicable)
- Beginning and ending of each section
- Length, widths and true areas
- Functional Classification (MPAH, local)
- Number of travel lanes
- PCI and date of inspection
- Type of recommended treatment
- Cost of recommended treatment

Public alleys formally accepted as part of the local agency’s street system may be included in the PMP submittal at the local agency’s option. Public parking lots and private streets shall not be included in this submittal.



Chapter 3 – Agency Submittals

Local agencies must submit to OCTA the following as part of the biennial certification:

1. PMP Agency Submittal ~~Checklist Template~~ (See Appendix A)
2. PMP certification (see ~~Appendix B Page A-5~~)
3. QA/QC plan (see ~~Appendix C Model QA/QC Plan Pages A-15 – A-19~~)
4. Pavement management data files in a form useable by OCTA (see ~~Section Page 2-8~~)
5. PMP “hard copies” which include the following:
 - a. Average (weighted by area) PCI as of June 30 of the submittal year for:
 - i. Entire pavement network
 - ii. MPAH roadways
 - iii. Local streets
 - b. Projected PCI under existing funding levels, by year, over the next seven years for:
 - i. Entire pavement network
 - ii. MPAH roadways
 - iii. Local streets
 - c. Seven-year plan for road maintenance and rehabilitation based on current and projected budget, identifying street sections selected for treatment. Specific data to be submitted are:
 - i. Street name
 - ii. Limits of work
 - iii. Lengths, widths
 - iv. Pavement areas
 1. Each street
 2. Total area for local streets
 3. Total area for MPAH roadways
 4. Total area for entire public streets network
 - v. Functional classification (i.e. MPAH or local street)
 - vi. PCI and most recent date of inspection
 - vii. Type of treatment
 - viii. Cost of treatment
 - ix. Year of treatment
 - d. Alternative funding levels required to:
 - i. Maintain existing average network PCI
 - ii. To improve average network PCI
 - e. Backlog by year of unfunded pavement rehabilitation, restoration, and reconstruction needs.
 - f. Centerline mileage for MPAH, local streets, and total network.
 - g. Percentage of total network in each of the five condition categories based on centerline miles.
6. In order to be eligible for the local match reduction of 10%, the local jurisdiction must either:
 - a. Show measurable improvement of paved road conditions during the previous reporting period defined as an overall weighted (by area) average system improvement of one PCI point with no reduction in the overall weighted (by area) average PCI in the MPAH or local street categories;

or
 - b. Have road pavement conditions for the overall network during the previous reporting period within the highest 20% of the scale for road pavement conditions in conformance with OCTA Ordinance No. 3, defined as a PCI of 75 or higher.



Appendix A – Pavement Management Plan Submittal Template

The following template shall be used to submit the required Pavement Management Plan to OCTA. The Word document is available for download at octa.net/Eligibility.



Agency

Pavement Management Plan

Prepared by: [Author Name]

Submitted to OCTA:[Date]



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I. Pavement Management Plan Certification

The City/County of Type Here certifies that it has a Pavement Management Plan in conformance with the criteria stated in the Orange County Transportation Authority Ordinance No. 3. This ordinance requires that a Pavement Management Plan be in place and maintained to qualify for allocation of revenues generated from renewed OC Go (formerly known as Measure M2).

The plan was developed by Type here* using Type here, a pavement management system, conforming to American Society of Testing and Materials (ASTM) Standard D6433, and contains, at a minimum, the following elements:

- Inventory of MPAH and local routes reviewed and updated biennially. The last update of the inventory was completed on Month, Year for Arterial (MPAH) streets and Month, Month for local streets.
• Assessment of pavement condition for all routes in the system, updated biennially. The last field review of pavement condition was completed on Month, Year.
• Percentage of all sections of pavement needing:
o Preventative Maintenance: Type here%
o Rehabilitation: Type here%
o Reconstruction: Type here%
• Budget needs for Preventative Maintenance, Rehabilitation, and/or Reconstruction of deficient sections of pavement for:
o Current biennial period \$Type here
o Following biennial period \$Type here
• Funds budgeted or available for Preventative Maintenance, Rehabilitation, and/or Reconstruction:
o Current biennial period \$Type here
o Following biennial period \$Type here
• Backlog by year of unfunded pavement rehabilitation, restoration, and reconstruction needs.
• The Pavement Management Plan is consistent with countywide pavement condition assessment standards as described in the OCTA Countywide Pavement Management Plan Guidelines adopted by the OCTA Board of Directors.

*An electronic copy of the Pavement Management Plan (with Micro Paver or StreetSaver compatible files) has been, or will be, submitted with the certification statement.

A copy of this certification is being provided to the Orange County Transportation Authority.

Submitted by:

Click here to enter text.
Name (Print)

Click here to enter text.
Jurisdiction

Signed

Click here to enter a date.
Date

Click here to enter text.
Title (Public Works Director and/or City Engineer)



II. Executive Summary

Click here to enter text.



III. Background (Optional)

Click here to enter text.



IV. Current Pavement Conditions (PCI)

Current Network PCI	Current MPAH PCI	Current Local PCI
Click here to enter	Click here to enter	Click here to enter

V. Projected Pavement Conditions (PCI)

Should be by projected PCI by year under existing or expected funding levels for next seven fiscal years (“Today” is before June 30).

Fiscal Year	Current Funding	Entire Network PCI	MPAH	Local
Today	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2018-19	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2019-20	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2020-21	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2021-22	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2022-23	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2023-24	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2024-25	Click here to enter	Click here to enter	Click here to enter	Click here to enter



VI. Alternative Funding Levels

Maintain Existing Average Network PCI

Fiscal Year	Maintain Funding	Entire Network PCI	MPAH	Local
Today	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2018-19	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2019-20	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2020-21	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2021-22	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2022-23	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2023-24	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2024-25	Click here to enter	Click here to enter	Click here to enter	Click here to enter

Improve Average Network PCI

Fiscal Year	Current Funding	Entire Network PCI	MPAH	Local
Today	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2018-19	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2019-20	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2020-21	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2021-22	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2022-23	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2023-24	Click here to enter	Click here to enter	Click here to enter	Click here to enter
2024-25	Click here to enter	Click here to enter	Click here to enter	Click here to enter



VII. Current and Projected Backlog by Year of Pavement Maintenance Needs

Fiscal Year	Current Funding Backlog	Maintain PCI Backlog	Increase PCI Backlog
Current	Click here to enter	Click here to enter	Click here to enter
2018-19	Click here to enter	Click here to enter	Click here to enter
2019-20	Click here to enter	Click here to enter	Click here to enter
2020-21	Click here to enter	Click here to enter	Click here to enter
2021-22	Click here to enter	Click here to enter	Click here to enter
2022-23	Click here to enter	Click here to enter	Click here to enter
2023-24	Click here to enter	Click here to enter	Click here to enter
2024-25	Click here to enter	Click here to enter	Click here to enter

VIII. Centerline Mileage

Entire Pavement Network	MPAH	Local Roads
Click here to enter	Click here to enter	Click here to enter



IX. Percentage of Network in Each of Five Condition Categories Based on Centerline Miles

Condition Category	PCI Range	Network	Percent Area of Total Pavement	Area of Pavement (sf)	Percent Centerline Mileage of Network	Centerline Mileage of Network
Very Good	86-100	MPAH	Click here to enter%	Click here to enter	Click here to enter%	Click here to enter
		Local	Click here to enter%	Click here to enter		Click here to enter
Good	75-85	MPAH	Click here to enter%	Click here to enter	Click here to enter%	Click here to enter
		Local	Click here to enter%	Click here to enter		Click here to enter
Fair	60-74	MPAH	Click here to enter%	Click here to enter	Click here to enter%	Click here to enter
		Local	Click here to enter%	Click here to enter		Click here to enter
Poor	41-59	MPAH	Click here to enter%	Click here to enter	Click here to enter%	Click here to enter
		Local	Click here to enter%	Click here to enter		Click here to enter
Very Poor	0-40	MPAH	Click here to enter%	Click here to enter	Click here to enter%	Click here to enter
		Local	Click here to enter%	Click here to enter		Click here to enter



X. Reduction in Local Match

A local agency match reduction of 10% of the eligible cost for projects submitted for consideration of funding through the Comprehensive Transportation Funding Programs (CTFP) call for projects is available if the local agency either:

- a. Shows measurable improvement of paved road conditions during the previous reporting period defined as an overall weighted (by area) average system improvement of one Pavement Condition Index (PCI) point with no reduction in the overall weighted (by area) average PCI in the Master Plan of Arterial Highways (MPAH) or local street categories;

or

- b. Have road pavement conditions during the previous reporting period, within the highest 20% of the scale for road pavement conditions in conformance with OCTA Ordinance No. 3, defined as a PCI of 75 or higher, otherwise defined as in “good condition”.

If applicable, please use the space below to justify the local agency’s eligibility for a reduction in Local Match based on the statement above.

[Click here to enter text.](#)



XI. Appendix A – Seven-Year Road Maintenance and Rehabilitation Plan Based on Current or Expected Funding Level

The seven-year plan for road maintenance and rehabilitation should be based on current and projected budget. Street sections selected for treatment should be identified here. Specific data to be submitted should follow the format below:

MPAH								
	Limits of Work							
Street Name	From	To	Length of Segment	Width of Segment	Pavement Area	Type of Treatment	Cost of Treatment	Year of Treatment

LOCAL								
	Limits of Work							
Street Name	From	To	Length of Segment	Width of Segment	Pavement Area	Type of Treatment	Cost of Treatment	Year of Treatment

Please attach the seven-year road maintenance and rehabilitation plan, following the above template, after this sheet. The plan should be labeled Appendix A.



XII. Appendix B – Complete Listing of Current Street Conditions

A complete listing of current pavement conditions should be included in this report. Specific data to be submitted should follow the format below:

MPAH						
Street Name	From	To	Width of Segment	Area	Current PCI	Most Recent Inspection Date

LOCAL						
Street Name	From	To	Width of Segment	Area	Current PCI	Most Recent Inspection Date

Please attach the complete street listing, following the above template, after this sheet. The pages should be labeled Appendix B.

XIII. Appendix C – Quality Assurance/Quality Control Plan

Introduction

When performing data collection in any field, the need for quality control is paramount as it is essential for accurate planning, analysis and design. This is particularly true for collecting pavement distress data for a pavement management system.

The Quality Assurance/Quality Control (QA/QC) Plan establishes minimum quality standards for performance and procedures for updates of the pavement management system.

If applicable, utilize the space below to include information on the agency’s QA/QC policies:

[Click here to enter text.](#)

Objectives

This document constitutes a formal QA/QC Plan for the City/County. It was prepared on Select date and last revised on Select date.

Specifically, it is intended for the Year Applicable Pavement Management Plan Update. The focus is on the collection of network-level pavement distress data (defined by National Cooperative Highway Research Program (NCHRP) Synthesis 401 Quality Management of Pavement Data Collection, as “Network-level data collection involves collection of large quantities of pavement condition data, which is often converted to individual condition indices or aggregated into composite condition indices.”)

This document also addresses the QA/QC plan requirements of the Orange County Transportation Authority (OCTA)’s “Countywide Pavement Management Plan Guidelines” (section 2.4), originally adopted in May 2010.

Structure of QA/QC Plan

The following components are addressed in this QA/QC Plan:

- Condition survey procedures used
- Accuracy required for data collection
- Inspector qualifications and experience
- Safety



Condition Survey Procedures

The governing document in performing condition surveys for the Enter agency name is ASTM D6433 “Standard Practice for Roads and Parking Lots Pavement Condition Index (PCI) Surveys.” Both asphalt concrete (AC) and Portland cement concrete (PCC) pavements are included in this protocol. The following distresses are collected for each pavement type.

Asphalt Concrete AC Pavements

1. Alligator (fatigue) cracking
2. Bleeding
3. Block cracking
4. Bumps and sags
5. Corrugation
6. Depression
7. Edge cracking
8. Joint reflection cracking
9. Lane/Shoulder drop off
10. Longitudinal & Transverse cracking
11. Patching and utility cut patching
12. Polished aggregate
13. Potholes
14. Railroad crossing
15. Rutting
16. Shoving
17. Slippage cracking
18. Swell
19. Weathering
20. Raveling

Portland Cement Concrete (Jointed)

1. Blowup/buckling
2. Corner breaks
3. Divided slab
4. Durability (“D”) cracking
5. Faulting
6. Joint seal damage
7. Lane/shoulder drop off
8. Linear cracking
9. Patching (large) and utility cuts
10. Patching (small)
11. Polished aggregate
12. Popouts
13. Pumping
14. Punchout
15. Railroad crossing
16. Scaling, map cracking and crazing
17. Shrinkage cracks
18. Spalling (corner)
19. Spalling (joint)

Any exceptions to the above procedures are discussed before any surveys are performed. These are documented in the paragraphs below.

[Note to agency: these are usually related to distresses or situations that are not covered in the manuals. Examples include roller check marks or edge cracking on streets with no curbs and gutters. Others include the raveling of surface seals or the use of open-graded asphalt concrete mixes where the surface appears to have large voids present. Any modifications must be documented and included in this document. Photos are extremely helpful.]

All surveys are performed as Indicate type of surveys – walking, windshield, semi-automated etc. surveys, and a minimum 10% sampling rate is utilized. Field crews are typically composed of Click here to enter field crew information (Typically a one-person crew on residential streets and some collectors, and up to two-person crews for major arterials, depending on traffic volumes and speeds. Edit as appropriate). The safety of field personnel is paramount in all instances.

The sample unit selected must be representative of the entire pavement section. This assumes that the section is homogenous; if it is not homogeneous, then the section must be split according to the criteria agreed upon by the agency. Typically, the criteria used are:

- Pavement condition
- Construction age, if known
- Maintenance history, if known
- Traffic volumes (or functional classification as a surrogate)
- Surface types (e.g. asphalt concrete or Portland cement concrete)
- Geometric elements (e.g. widths)

Any modifications to the section inventory data are documented in the pavement management report. A sample unit must be between $2,500 \pm 1,000$ square feet in conformance with ASTM D6433 protocols. Typical sample unit dimensions are 100 feet long by the width of the street. Streets that are wider than 40 feet wide will have shorter lengths (generally 50 feet) or if they are divided by a raised median, separate sample units will be taken in each direction.

Any pavement areas that are not representative of the section will be noted and surveyed as an additional sample unit.

Accuracy Required for Data Collection

The accuracy required for data collection has two components, both of which are further described in the following paragraphs.

- Re-inspections
- PCI comparisons with past surveys

Random and Systematic Re-Inspections

Random Re-inspections

Random re-inspections will include a representative selection across the following categories:

- Functional classes (i.e. MPAH, locals);
- Surface types (e.g. asphalt concrete or Portland cement concrete);
- Pavement conditions (e.g. good, fair, poor);
- Inspectors;
- Geographical areas, if applicable.

Systematic Re-inspections

For systematic re-inspections, this could be due to noticed trends such as specific treatment types (e.g. open-graded mixes), a specific inspector or geographical area. In such cases, more than 5% will be re-inspected.



Acceptability Criteria

At the time of re-inspection, the actual distresses will be re-inspected and verified, and any corrections made, if necessary. Distress types and severities must be the same and re-measured quantities within $\pm 10\%$ of the original measured quantity.

If corrections are required on more than 10% of the re-inspected sample unit, then an additional 5% will be re-inspected. This will continue until more than 95% of the re-inspected sections meet the acceptability criteria.

PCI Comparison with Past Surveys

As another level of quality control, the new PCIs are compared with the previous PCIs. If they differ by more than ± 10 PCI points, these sections are automatically flagged for further investigation.

If PCI Increases 10 points

The section is investigated to see if a maintenance and rehabilitation event has occurred since the last survey, but has not been recorded. Typically, it may include activities such as:

- Crack sealing activities – changes medium or high severity cracking to low severity
- Patching activities – alligator cracking that has been removed and patched, so that the resultant PCI is increased.
- Surface seals
- Overlay
- Others

Therefore, an up to date maintenance and rehabilitation history file in the pavement management database is desirable, both for historical accuracy as well as to provide additional quality control.

If PCI decreases 10 points

The section is checked to see if the average deterioration rate (usually 3 to 4 points per year) is exceeded. If the drop in PCI is within range of what is acceptable, no further action is required. If the drop is more than the acceptable range, a re-inspection will be performed. The default performance curves in the pavement management software form the basis for what is acceptable.



Inspector’s Qualifications and Experience

The Enter agency here inspectors have attended formal training on pavement condition distress surveys. This training was conducted prior to performing any work using the ASTM D6433 protocols, consistent with OCTA’s requirements.

Inspector Name	Date of ASTM D6433 Training	Training Conducted By:
Click here to enter	Click here to enter	Click here to enter
Click here to enter	Click here to enter	Click here to enter

Resumes of the technicians utilized on this project are included as an attachment.

Safety Procedures

The Enter agency here administers a health and safety program in compliance with the Cal Occupational Safety and Health Administration (OSHA) Title VIII, Section 3203. The program is documented in Enter document name here.

Generally, the safety procedures include (Edit as applicable to agency):

- Inspectors to wear a Class 2 or 3 safety vest at all times;
- Flashing beacon on all vehicles utilized for surveys; and
- Stopped vehicles to be parked at locations away from moving traffic (e.g. nearby parking, shoulders, etc.).
- Enter safety protocol here.

On streets where there is a high volume of traffic or high speeds, additional measures may be necessary, such as:

- Surveys to occur during off-peak periods or on weekends;
- Additional inspector to watch out for traffic; and
- Traffic flaggers in extreme cases.

Attachment – Appendix C: Resumes of Field Inspectors

---End of QA/QC Plan---



XIV. Appendix D – Pavement Management Data Files

The Pavement Management data files shall be submitted to OCTA in spreadsheet format. This must include the following information:

- Street name and limits for all public streets
- Street identifiers (Branch ID, Section ID)
- Direction (if applicable)
- Beginning and ending of each section
- Length, widths, and true areas
- Functional Classification (MPAH, Local)
- Number of travel lanes
- PCI and date of inspection
- Type of recommended treatment
- Cost of recommended treatment

The Pavement Management data files are attached here as a CD, or included as Appendix D



XV. Appendix E – GIS Maps – Current Conditions (Optional)

If included, attach and label Appendix E.



Appendix B – Prequalified Pavement Inspection Consultants and Local Agencies

March 23, 2016 – Expires June 30, 2018

1. Bucknam Infrastructure Group
2. City of Cypress
3. Civil Source, Inc.
4. Dynatest
5. Fugro
6. GIE
7. NCE
8. Onward Engineering
9. City of Orange

April 21, 2017 – Expires June 30, 2019

1. Adhara Systems, Inc.
 - Jeff Vu
 - William Duong
2. Fugro Roadware, Inc. (Automated)
 - Shi Chang
 - Thomas Burchett
3. GMU
 - Armando Roa
 - Ashley Varni
4. Harris & Associates
 - Marissa Baclig
 - Mike DeVila
 - Paul Muse
 - Vijay Pulijal
5. IMS
 - Alan Sadowsky
 - David Butler
6. Marker Geospatial (Automated)
 - John Zimmer
 - Ken Huisaran
7. NCE
 - David Na
 - Jacob Rajnowski
8. Twining
 - Adrian Moreno
 - Amir Ghavjbazoo
 - David Hanna Ford
 - Paul Soltis
9. Vanderhawk
 - Mat Huff

February 15, 2018 – Expires June 30, 2020

1. Bucknam Infrastructure Group
2. Dynatest

* Firms prequalified at least one representative in both cycles
(x) Number of inspectors prequalified

Appendix C – Recommendations for Pavement Inspectors

Since 2011, OCTA has completed prequalification studies which involved more than 30 inspectors and over 60 different pavement control sections. From one prequalification cycle to the next, OCTA made an effort to streamline and improve the process by learning from the observations made during each prequalification cycle. Following are recommendations for inspectors interested in participating in the prequalification program:

General

- Inspectors should have in their possession the latest edition of the Paver pocket guides for easy reference to distress definitions and severity levels during field surveys.
- It is important to accurately measure crack width in order to correctly identify the severity of distress.
- It is strongly advised that inspectors have a second person watch for traffic while they are conducting the surveys. Visually approximating quantities of distress and severities will most certainly result in inaccurate estimates of the PCI.

PCC Pavements

- There are a limited number of concrete pavements in Orange County. The majority of these pavements are old and in some instances the slabs are more than 50 feet long. According to ASTM D6433, slabs longer than 9m (29.5 feet) must be divided into imaginary joints that are considered to be in perfect condition.
- Missing joint seal on concrete pavement is recorded as high severity joint seal damage for the entire length of joints affected. Most PCC pavements in the county completely lack joint sealant.
- When surveying a PCC section, it is very important to make sketch of the slabs being evaluated. Without the sketch, it will be very difficult to correctly count and report distress.

Asphalt Concrete Pavements

- Several types of distress may occur in the same area. With few exceptions, all types of distress have to be recorded: e.g. raveling and alligator cracking.
- Measurements of rutting require the use of a straight edge of minimum 6 feet length. Repeated measurements are required to correctly identify the areas of rutting and severity levels. This type of measurement requires the help of a second person to watch for traffic. Remember that OCTA does not provide traffic control.

Surface Treatments

- ASTM D6433 does not include distresses specific to surface treatment such as slurry seals or chip seals. Inspectors should use their best judgment to evaluate the condition of the original asphalt concrete surface underneath the surface treatment.