Innovative Deployments to Enhance Arterials (IDEA) Challenge Grant Program

Program Overview

The Metropolitan Transportation Commission (MTC) invites eligible Bay Area public agencies to submit applications for consideration under a new regional initiative called the Innovative Deployments to Enhance Arterials (IDEA). MTC's interest is to not only continually advance innovation to help us further improve the operations of our arterials systems, but also to enhance the readiness of the Bay Area for connected and automated vehicle technologies.

The Bay Area has over 33,000 directional miles of arterials and local streets and approximately 11,000 traffic signals. Some of the region's major arterials carry heavy traffic and experience significant congestion during the weekday peak periods. This congestion can lead to loss of productive time, unreliable travel for autos and transit vehicles, and increased safety issues for bicyclists and pedestrians.

IDEA is designed to provide a funding opportunity to support cities, counties and transit agencies to deploy advanced technologies along their arterials to enhance mobility, sustainability and safety across all modes. Public agencies may opt to deploy mature, commercially-available technologies on their own or integrated with newer, higher-risk connected and automated vehicle technologies. Agencies may also choose to support regional readiness for future connected/automated vehicle on arterials by deploying pilot concept projects using cutting-edge connected/automated vehicle technologies.

Federal funds available through IDEA are designed to assist agencies with project implementation through capital support and consultant technical assistance. Services to be performed by the consultants will be defined by MTC, in coordination with the grant recipients.

Program Goals

The core goals of IDEA are to:

1) Improve travel time and travel time reliability along arterials for autos and transit vehicles;
2) Improve safety of motorists, transit riders, bicyclists, and pedestrians;
3) Decreasing motor vehicle emissions and fuel consumption; and
4) Improve knowledge of and proficiency in the use of advanced technologies for arterial operations.

Eligible Projects

Eligible projects under IDEA must support the Program goals. A total of $13 million in federal funds is available. Grant funds will be directed towards Category 1 projects (i.e., uses mature, commercially-available advanced technologies) and Category 2 projects (i.e., uses connected/automated vehicle technologies); funding distribution for each category will depend on the pool of candidate projects. Refer to Attachment A for additional details and example projects within each category.

Project Category	Brief Description
Project Category 1: Mature, Commercially-available Advanced Technologies	
Signal System Improvements	These projects improve traffic signal systems and the management of arterial operations to provide better mobility along the corridor. Example projects: Automated Traffic Signal Performance Measures implementation, adaptive signal control technology deployments, etc.
Bicycle/Pedestrian Improvements	These projects make operational improvements to bicycle/pedestrian infrastructure to encourage active modes of transportation. Example projects: bicycle/pedestrian detection, bicycle green waves, etc.
Transit Improvements	These projects improve existing transit systems along high-demand transit routes to encourage mode shifting. Example projects: Transit Signal Priority (TSP) expansion, queue jump lanes, etc.
Other Improvements	These projects include improvements to arterial operations that are not necessarily covered in the categories above. Example projects: Emergency Vehicle Pre-emption (EVP) expansion, dynamic lane assignment, coordination of arterial signals with ramp metering, etc.
Project Category 2: Connected/Automated Vehicle Technologies	
Bicycle/Pedestrian Improvements	These projects or project elements would incorporate dynamic messaging between bicyclists/pedestrians, vehicles and infrastructure to enhance arterial operations. Example projects: Active signal priority systems for bicyclists and pedestrians, vulnerable road user protection through transmission of surrogate Personal Safety Messages to vehicles, etc.
Multi-Modal Intelligent Transportation Signal Systems (MMITSS)	These projects would utilize the open source code for MMITSS as well as advanced communications and detection technologies to optimize signal operations by incorporating data from connected vehicles. Example projects: Any of the US Department of Transportation-defined MMITSS applications, e.g., TSP, PREEMPT (advanced EVP), Intelligent Traffic Signal System (ISIG), etc.
Driving Optimization	These projects would utilize messaging between signal infrastructure and vehicles to affect driver behavior, which can lead to environmental improvements. Example project: Eco-Approach and Departure at Signalized Intersections application.

Eligible Applicants

Public agencies (cities, counties, and transit agencies) are eligible to apply for grant funding under IDEA. While all these public agencies are eligible to apply, projects that meet the minimum requirements below, for each project category, will receive funding priority:

Project Category	Minimum Requirement for Funding Priority
Project Category 1: Mature, Commercially-available Advanced Technologies	
Signal System Improvements	• For adaptive signal projects: - Refer to Attachment B to first determine whether the corridor is a good candidate for an adaptive system - Arterial is currently operating on a central signal system • For all other projects: - Arterials with basic communications to signals
Bicycle/Pedestrian Improvements	• Corridors or locations with high (or the potential for high) bicycle or pedestrian demand • Arterials with basic communications to signals
Transit Improvements	• Transit Signal Priority already in place • Corridors serving at least two transit routes • Arterials with moderate to high levels of congestion
Other Improvements	• See above
Project Category 2: Connected/Automated Vehicle Technologies	
Bicycle/Pedestrian Improvements	• Corridors or locations with high (or the potential for high) bicycle or pedestrian demand • Arterials with basic communications to signals
Multi-Modal Intelligent Transportation Signal Systems (MMITSS)	• Arterials with moderate to high levels of congestion • Arterials with basic communications to signals • Arterials regularly carrying traffic from a controlled or specific fleet of vehicles (e.g., transit routes, other publicly owned-vehicles, serving a large employer who is included within the project)
Driving Optimization	• Arterials with moderate to high levels of congestion • Arterials with basic communications to signals • Arterials regularly carrying traffic from a controlled or specific fleet of vehicles (e.g., transit routes, other publicly owned-vehicles, serving a large employer who is included within the project)

Project Delivery and Partnerships

Procurements

MTC shall play an active role in delivering all project work by co-managing and providing input on the scope of work and reviewing deliverables. Depending on the type of project it is possible, even likely, that the procurement of professional services, such as for the delivery of systems engineering deliverables, would be done using MTC procurement procedures designed for this purpose, with the public agency project sponsor(s) as partners. The procurements of capital improvements, hardware and software, however, would likely be conducted by the public infrastructure owner operator and reimbursed via a funding agreement with MTC. Deviations from this general pattern would be approved by MTC on a case-by-case basis.

Combining Technologies and Funding Categories

Applicants are allowed to request funding for a single project that combines a project listed in Attachment A under Project Category 1 and one listed under Project Category 2, if and only if:

- The Category 1 project constitutes a separate improvement that can be judged on its own merits;
- The Category 1 project is delivered in an earlier phase of the project than the Category 2 project; and
- The applicant demonstrates, within the project description deployment plan and evidence of project management capacity that the project team can avoid delay in delivering the Category 1 project.

MTC reserves the right to request changes to the scope of work and selectively fund certain project elements.

Call for Public-Private Partnerships

Applicable to Category 2 projects *only*, public agencies are encouraged to partner with the private sector to pilot advanced technologies that support connected and automated vehicles. MTC supports partnerships with firms to deliver the innovative elements under Category 2 because these may require specific, and less common, expertise with these newer technologies in an early phase of planning a project. Private firms may help shape the scope of work for the project proposal and play a role in project delivery.

The private sector partner must make a specified financial contribution (not just in-kind) to the overall project cost which will be assessed by MTC in light of the overall project costs and benefits. All applications, regardless of the type of work, must meet the Caltrans State and Local Assistance guidelines pertinent to federal funding and sourcing. MTC can address questions about the federal requirements for these partnerships at the August and September workshops; although, requirements for specific projects may need to be handled on a case-by-case basis, prior to the application deadline.

Grant Funding / Match

	Category 1	Category 2
Total Grant Funds Available	TBD	TBD
Minimum Grant Awards	$0.25 million	
Maximum Grant Awards	$3 million	
Minimum Local Cash Match (% of total project cost)	15%*	
Minimum In-Kind Match (% of total project cost)	10%	

** For projects with private sector participation, of the total 15% cash match requirement, a private sector partner must provide at least a third of this requirement (i.e., 5% of the total project cost as cash).*

How to Calculate Match

The match is based on **total project cost**, not the amount of the grant. See example below:

Total Project Cost = $350,000
Grant Amount = $262,500
Minimum Local Cash Match = $52,500 (15% of $350,000)
Minimum In-Kind Match = $35,000 (10% of $350,000)

The sources for these competitive grants are federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds. All projects must meet CMAQ eligibility and requirements. Following project selection, MTC will apply to Caltrans Local Assistance to complete the E-76 process on behalf of project sponsors. However, agencies are expected to comply with federal-aid requirements, as applicable. More information on CMAQ requirements can be found here: http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2013_guidance/index.cfm.

Application and Evaluation Process

All applications for eligible projects received by the due date will be reviewed by an evaluation committee convened by MTC. See Attachment C for project application. MTC reserves the right to reject any incomplete application, i.e., an application that does not include sufficient information that will enable the evaluation committee to adequately score the application based on the criteria described below.

Completed applications must be submitted via email to Linda Lee, Arterial Operations Program Manager, at llee@mtc.ca.gov.

EVALUATION CRITERIA (100 points total)
The following evaluation criteria will be used to score each completed application:

- **Project Concept (25 points)**
  - Clarity of project or project concept, i.e., deployment project or project concept addresses demonstrated needs
  - Plan utilizes innovative technologies in an appropriate fashion (for Category 2 projects)

- **Implementation (30 points)**
  - Ability to implement project within two to three years upon receipt of grant funding
  - Commitment of specific and sufficient staff
  - Demonstrated project management capacity
  - Demonstration of support from relevant stakeholders, partners or decision-makers

- **Project Impact (30 points)**
  - Potential to reduce GHG and other types of emissions (this could be through mode shift, decreased travel time, reduced vehicle idling/braking, reduced VMT, etc.)
  - Potential to provide regional or corridor-level benefits
  - Potential to provide benefits to a large number of users (outreach area)

- **Match (10-15 points)**
  - 10 points will be given for meeting minimum match requirements (cash and in-kind)
  - Up to 5 additional points will be given for any match over the minimum

Timeline

Due to the recognized complexity of Category 2 projects, additional time will be provided to potential applicants to develop the scope of these projects. Applications that include only Category 1 projects will be due first; however, MTC reserves the right to the award some Category 1 projects at a later date, depending upon the strength of the submittals for Category 1 and Category 2 projects.

Activity	Date
MTC Issues Call for Projects	July 17, 2017
Round 1 Regional Workshops for potential applicants	August 21 and August 23, 2017 See "Regional Workshops" below for details.
Round 2 Regional Workshops (focus on Category 2 projects)	September 2017 (dates TBD)
For applications that include only Category 1 Projects:	
Applications Due	September 29, 2017 at 4:00pm
Evaluation panel completes review of applications and recommends grant awards	October 2017 (tentative)
Committee/Commission Approvals of Grant Awards	November 2017 (tentative)
For all other applications*:	
Applications Due	November 17, 2017 at 4:00pm
Evaluation Committee completes review of applications and recommends grant awards	January 2018 (tentative)
Committee/Commission Approval of Grant Awards	February 2018 (tentative)

* Includes Category 2-only projects and combination of Category 1 and Category 2 projects.

Regional Workshops

MTC will be hosting the following three workshops to provide prospective applicants with an overview of the IDEA Challenge Grant Program and to answer any questions applicants may have. Additional workshops that will primarily focus on Category 2 project applications will be held in September – specific dates will be determined and announced later. Please check MTC's website for updates.

Workshop #1	**Workshop #2**	**Workshop #3**
Monday, August 21, 2017 2:00pm to 4:00pm Alameda County Transportation Commission (ACTC) Room B and Room C 1111 Broadway, Suite 800 Oakland, CA 94607	Wednesday, August 23, 2017 10:00am to 12:00pm Sonoma County Transportation Authority (SCTA) STCA Large Conference Room 490 Mendocino Ave #206 Santa Rosa, CA 95401 *Space for this event is limited, please register here:* https://goo.gl/forms/rKBxcmgcE3LmFI022	Wednesday, August 23, 2017 2:00pm to 4:00pm San Mateo County Transit District (SamTrans) 2nd floor Auditorium 1250 San Carlos Avenue San Carlos, CA 94070
Workshop #4 ***(specific to Category 2)***	**Workshop #5** ***(specific to Category 2)***	
Thursday, September 7, 2017 1:00pm to 3:00pm Contra Costa Transportation Authority (CCTA) 2999 Oak Road, Suite 110 Walnut Creek, CA 94597	September 12, 2017 1:00pm to 3:00pm Santa Clara Valley Transportation Authority (VTA) Auditorium, Building A 3331 N. First St San Jose, CA 95134	

Contact Information

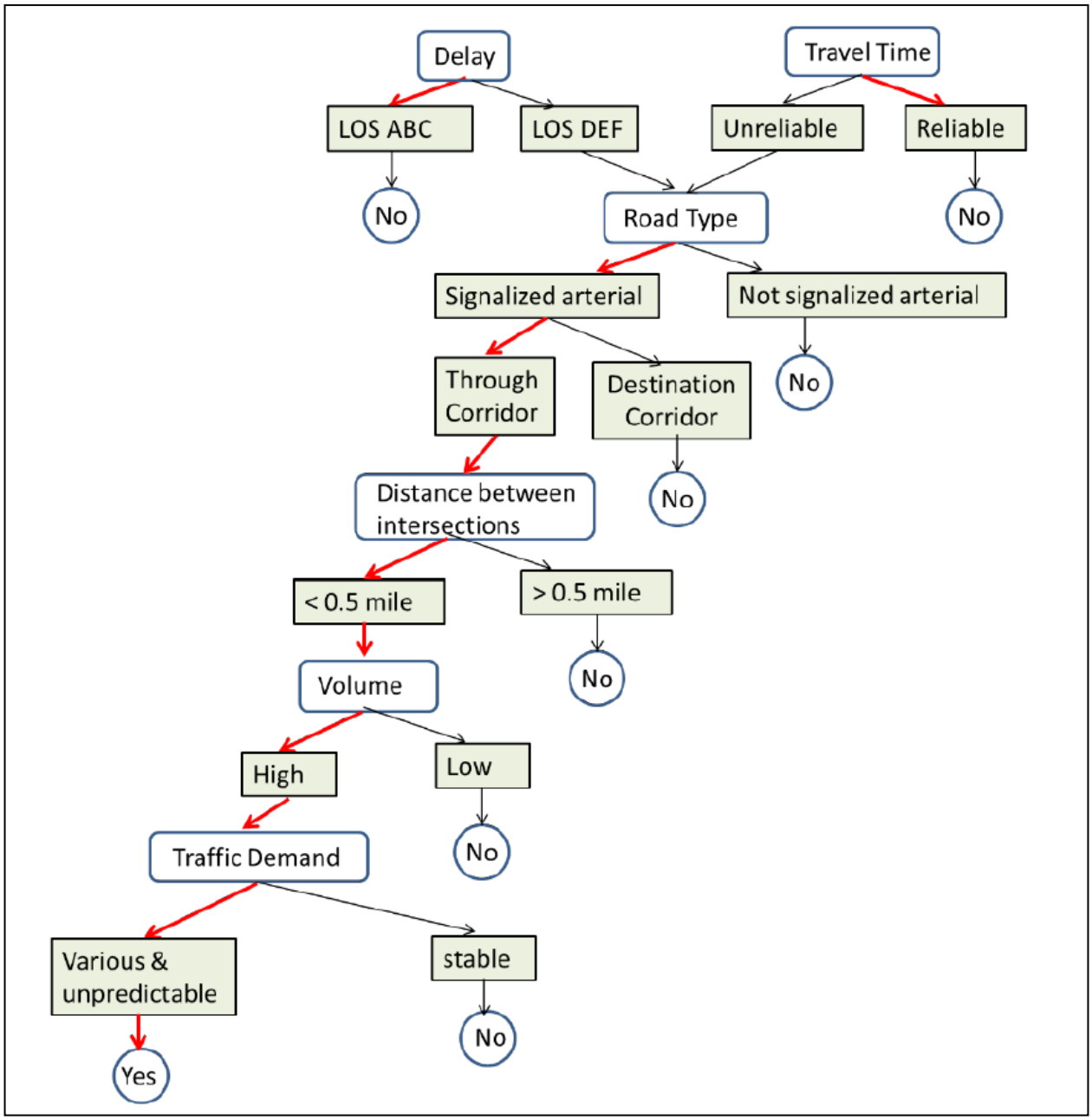
For general questions about grant application requirements, please contact Linda Lee. To discuss potential project ideas in advance of submitting an application, please contact the following MTC staff:

Project Category 1	**Project Category 2**
Linda Lee Arterial Operations Program Manager 415.778.5225 llee@mtc.ca.gov	Robert Rich Connected/Automated Vehicle Program Manager 415.778.6621 rrich@mtc.ca.gov

ATTACHMENT A
INNOVATIVE DEPLOYMENTS TO ENHANCE ARTERIALS (IDEA)
ELIGIBLE PROJECTS

ATTACHMENT B
DECISION TREE FOR ADAPTIVE SIGNAL

Note to applicants for an adaptive signal system project: This decision tree is to be used to determine whether or not a corridor is a good candidate for an adaptive signal system. If it is, applicant will be required to provide information/data to support the questions asked in the decision tree.



ATTACHMENT C
INNOVATIVE DEPLOYMENTS to ENHANCE ARTERIALS (IDEA)
GRANT APPLICATION
Application deadlines:
Category 1 only projects: Friday, September 29, 2017, 4:00 p.m.
All other applications: Friday, November 17, 2017, 4:00 p.m.
Please review the IDEA Program Guidelines for additional information.

PART 1: GENERAL INFORMATION	
a) Project Sponsor	
Lead Applicant (Agency)	Click here to enter text.
Project Manager (name and title)	Click here to enter text.
Contact Information (email and phone)	Click here to enter text.
b) **Project Partners** [please list all project partners (i.e., public agencies/businesses/organizations) that will be involved, and their role in the project]; use additional sheets of paper, if needed. (Detailed description of roles in the project to be provided in Section 5c.)	
1. Agency/Business/Organization	Click here to enter text.
Contact Name	Click here to enter text.
Contact Information (email and phone)	Click here to enter text.
Role in Project (brief)	Click here to enter text.
2. Agency/Business/Organization	Click here to enter text.
Contact Name	Click here to enter text.
Contact Information (email and phone)	Click here to enter text.
Role in Project (brief)	Click here to enter text.
c) Consent: Consent to share project data and cooperate with any future MTC effort to evaluate project performance, if selected.	☐ Yes ☐ No (please explain) Click here to enter text.
PART 2: PROJECT CATEGORY	
a) Grant Program	☐ Category 1: Mature, Commercially-available Advanced Technologies [complete b] ☐ Category 2: Connected/Automated Vehicle Technologies [complete c] ☐ Combination of Category 1 and Category 2 [complete b and c]
b) Project Category 1	☐ Signal System Improvements ☐ Bicycle/Pedestrian Improvements ☐ Transit Improvements ☐ Other
c) Project Category 2	☐ Bicycle/Pedestrian Improvements ☐ Multi-Modal Intelligent Transportation Signal Systems ☐ Driving Optimization ☐ Other

PART 3: BRIEF PROJECT DESCRIPTION	
a) Project Title	Click here to enter text.
b) Brief Project Description and Purpose	Click here to enter text.
c) Project Location	Click here to enter text.
PART 4: COST AND FUNDING	
a) Total Project Cost [b+c+d+e]	Click here to enter text.
b) Total Grant Request from MTC	Click here to enter text.
c) Local Cash Match	Click here to enter text.
d) Private sector cash match (if applicable)	Click here to enter text.
e) In-Kind Match	Applicants must also provide a basis for the valuation of their in-kind match, which can include goods and/or services. Click here to enter text.
PART 5: NARRATIVE/COST PROPOSAL	
a) Detailed description of project (describe the project and services being requested) Click here to enter text.	
b) Project justification and needs (justify the project by describing what the agency needs are and how this project will meet those needs) Click here to enter text.	
c) Project roles, for both lead agency and partners (i.e., other agencies, businesses, organizations, etc.) Click here to enter text.	
d) Agency resources (describe the resources the sponsor agency will dedicate for the successful completion of the project) Click here to enter text.	
e) Project readiness (describe the readiness of the project, and any factors (e.g., construction projects) that may influence the project schedule in any way) Click here to enter text.	
f) Detailed project cost proposal (include breakdown of costs for capital, construction, consultants, etc.) *Include as an attachment, if needed.* Click here to enter text.	
g) Vicinity map *Include as an attachment*	
h) Letter of support from each partner agencies *Include as an attachment*	
i) Other information (provide any other relevant information not provided above) Click here to enter text.	

PART 6: CORRIDOR INFORMATION
To the extent possible, please submit the following information/data for each signal within the project corridor (click here for Excel template) - Project intersection name (major & minor street) - Traffic signal owner and operator - Existing communications (e.g., interconnect, fiber, wireless, none, etc.) - Controller information (i.e., type, firmware, and date of last firmware upgrade) - Type of detection (i.e., technology type, at stop bar and/or advance, lane-by lane, speed) - Any existing advanced technologies at intersection - Type of existing timing plans - Intersection lane configurations - Distances between adjacent signals along project corridor - Corridor transit service information (e.g., operator, route numbers, and headways) - On one of the CMA's Route of Regional Significance? (Y/N) - Operates on a reliever route (list the freeway) - Traffic volume, i.e., ADT, weekday peak hour turning movement counts - Contains bicycle facilities (e.g., lane, sharrow, protected lane, none) - Other volumes (e.g., bicycle or pedestrian), if applicable