

Attachment A – IDEA Eligible Projects

Eligible Category 1 Projects (Mature, Commercially-available Advanced Technologies)			
Project Category	Example Project	Description	What could be covered?*
1	Signal System Improvements	<p>Automated Traffic Signal Performance Measures (ATSPM)</p> <p>This project would implement ATSPMs to provide agencies with the information/tools needed to actively monitor signal performance and proactively identify and correct deficiencies before they negatively impact arterial operations. A fitness tracker for traffic signals, ATSPMs are a cost-effective way to improve traditional retiming processes by providing continuous performance monitoring capability through the use of high-resolution data and real-time performance measures, e.g., arrivals on green, vehicle delay, volume, speeds, travel time, etc.).</p> <p>Note: Learn more about ATSPMs by attending MTC’s Tech Transfer Seminar on August 7 (Register at: https://goo.gl/forms/QmYAI2aSXq9NAjiQ2).</p>	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software upgrades
	Adaptive Signal Control Technology (ASCT)	<p>This project would implement an ASCT system to dynamically adjust signal timing at traffic signals along a corridor in real-time to accommodate changing traffic conditions. These systems can improve travel time reliability, ease traffic congestion and reduce fuel consumption.</p>	<ul style="list-style-type: none"> • Consultant technical assistance • Adaptive system • Construction
2	Bicycle or Pedestrian Improvements	<p>Automated bicycle or pedestrian detection technology for real-time operations</p> <p>This project would deploy automated bicycle or pedestrian detection at appropriate locations to alert the traffic signal controller of the presence of these travelers. Improved detection can increase demand by reducing delays for active travel (e.g., prolonging the green phase to provide adequate time for cyclists or pedestrians to clear the intersection), and increasing convenience and safety for cyclists in particular (e.g., discourages red light running by cyclists). Types of automated bicycle detection include:</p> <ul style="list-style-type: none"> • In-pavement induction loops • Video • Microwave radar • Magnetometers 	<ul style="list-style-type: none"> • Consultant technical assistance • Detection, signage, pavement markings • Construction
	Bicycle Green Waves	<p>This project would deploy Green Waves along designated bike lanes to improve bicycle travel. Green Waves are defined as corridors where traffic signals are coordinated at an average speed for cyclists (e.g., 12 to 15 mph) to reduce the number of times cyclists need to stop. Green Waves can increase bicycle use by making travel more enjoyable. Green Wave projects could include in-pavement LED lights to provide speed awareness for cyclists.</p> <p>Examples of existing Green Waves can be found throughout San Francisco, including Valencia Street, between 16th and 25th Streets.</p>	<ul style="list-style-type: none"> • Consultant technical assistance • Signage, pavement markings, and/or LED lights, etc. • Construction

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3	Transit Improvements	Transit Signal Priority (TSP) Expansion	This project would expand upon an agency's existing TSP system, by providing additional TSP equipment on transit vehicles or at signalized intersections. TSP is a low-cost operational strategy that facilitates the movement of transit vehicles through signalized intersections to improve schedule adherence and transit travel time reliability.	<ul style="list-style-type: none"> • Consultant technical assistance • Equipment (in vehicle and/or at intersections) • Construction
		Queue Jump Lanes	This project would implement queue jump lanes at congested intersections to provide buses with a head-start, significantly improving bus performance. Queue jump lanes give buses either a leading bus interval or active signal priority to allow them to easily enter traffic flow in a priority position.	<ul style="list-style-type: none"> • Consultant technical assistance • Special signals, signage, etc. • Construction
4	Other	Emergency Vehicle Pre-emption (EVP) Expansion	This project would expand an agency's existing EVP system by providing EVP equipment on additional emergency response vehicles or at signalized intersections along additional corridors. EVP gives emergency response vehicles a special green interval on its approach, while providing a special red interval to conflicting approaches, thereby improving response times by reducing the probability of arriving at intersections during the red phase and encountering significant queues.	<ul style="list-style-type: none"> • Consultant technical assistance • Equipment (in vehicle and/or at intersections) • Construction
		Dynamic Lane Assignment at Signalized Intersections	This project would allow agencies to change lane assignments to meet different traffic demands through the use of changeable overhead signs, e.g., an approach with heavy left-turn movements in the AM peak can operate with dual left-turn lanes during that period, but the second left-turn lane can be changed to a through movement once the left-turn demand has dissipated.	<ul style="list-style-type: none"> • Consultant technical assistance • Changeable message signs, static signs, pavement markings, etc. • Construction
		Coordination of Arterial Signals with Ramp Metering System	This project would continue the type of work done by Caltrans, San Jose and PATH from 2011-2013 to systematize the coordination of ramp meters and signal systems. Queue spillback is a concern that limits ramp metering ability to improve mainline performance but this may in turn hurt overall system performance and lead to increased volumes on arterials that serve as freeway reliever routes.	<ul style="list-style-type: none"> • Consultant Technical Assistance • Application development • Communications/limited hardware

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Attachment A – IDEA Eligible Projects

Eligible Category 2 Projects (Connected and Automated Vehicle Technologies)				
Project Category		Example Project	Description	What could be covered?*
1	Bicycle or Pedestrian Improvements	Signal Priority for Active Travelers	This project would pilot the use of internet-enabled smart-phone applications to enable signal priority for pedestrians and bicyclists at intersections based on real-time usage (e.g., Siemens SiBike, KHA KITS Bike).	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development • Signage, pavement markings
		Vulnerable Road User Protection	CV messages sent over Dedicated Short-Range Communications (DSRC) from smart cameras at intersection enable ‘surrogate’ personal safety message (PSMs) that facilitate bicyclist/pedestrian collision avoidance with equipped vehicles.	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development
2	Multi-Modal Intelligent Transportation Signal Systems (MMITSS)	Transit Signal Priority(TSP)	High-fidelity transit signal priority application utilizing DSRC message sets.	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development
		Emergency Vehicle Preemption (PREEMPT)	High-fidelity emergency vehicle preemption application utilizing DSRC message sets.	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development
		Intelligent Traffic Signal System (ISIG)	ISIG is the overall optimization algorithm for MMITTS that can offer corridor/signal performance metrics for operators, as well adaptive functionality along with other features	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development
3	Driving Optimization	Eco-Approach and Departure at Signalized Intersections (DSRC-based)	This application provides signal data and speed recommendations to vehicles based on real-time operations to minimize vehicle-braking for red lights in order to save energy and reduce emissions.	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development
		Eco-Driving through Internet-Enabled Applications	<p>There are different private sector applications in non-automated automobiles that have similar functionality to the DSRC strategy above through internet-connections</p> <p><i>[Examples include TTS Personal Signal Assistant / Connected Signal Enlighten]</i></p>	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application Customization

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4	Automated vehicle deployment	Automated vehicle deployment	Projects that meet program goals and include automated vehicle technology within its operations are generally eligible under Category 2	<ul style="list-style-type: none"> • Consultant technical assistance • Appropriate hardware and/or software • Application development • Signage, pavement markings
5	Integrated Dynamic Transit Operations (IDTO)	Transit Connection Protection (T-CONNECT)	<p>Mobile application system that allows a traveler or travelers to request (and indicates the feasibility of) connection protection (holding the bus) when moving from one transit service to another.</p> <p><i>[Can be integrated with T-DISP or T-RIDE]</i></p>	<ul style="list-style-type: none"> • Consultant technical assistance • Application development •
		Dynamic Transit Operations (T-DISP)	<p>This is an adaptable concept that could include transit-flex services, transit-ride-hailing partnerships and/or mobile applications that provides multi-modal trip recommendations with intelligence on passengers current travel mode and dynamic.</p> <p><i>[Supports T-CONNECT by providing another trip alternative when a connection is not possible]</i></p>	<ul style="list-style-type: none"> • Consultant technical assistance • Cost of public-private partnership • Application development •
		Dynamic Ridesharing (D-RIDE)	<p>A carpool matching application used to arrange shared trips shortly before departure.</p> <p><i>[Supports T-CONNECT when a connection is missed in areas with low transit headways or during service disruptions.]</i></p>	<ul style="list-style-type: none"> • Consultant technical assistance • Cost of public-private partnership • Application development

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