

# Saving Lives with Connectivity:

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## Accelerating V2X Deployment



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## Federal Highway Formula and Grant Funding Sources Available for V2X

For state and local agencies looking to deploy Vehicle-to-Everything (V2X) technology in the short-term, federal funding support can be a significant factor in encouraging accelerated deployment. To encourage deployment, there are several federal funding sources that can aid projects financially throughout the deployment process and even continuing operations. This funding overview, beginning on the next page, includes multiple Federal Formula Funding opportunities as well as United States Department of Transportation (DOT) Discretionary Grant Funding opportunities. Please note, that this overview is not meant to be a full funding breakdown, nor guidance, but simply a resource for agencies to increase awareness and get started.

It is also important to note that deployment agencies will potentially need additional non-DOT funding (from State, local, and private sources) in addition to use of existing funding mechanisms (operations budget) to ensure the long-term success of a V2X deployment. Deployers should be aware of the costs associated with every step of the deployment process, from planning to operations and maintenance, and plan for funds required for each step.

### Federal Funding Opportunities Available for V2X Systems Planning and Deployment under the Bipartisan Infrastructure Law (BIL) FY 2022-2026

The following tables provide an informational listing of potential federal sources of funding for V2X system planning, implementation, and operations under the Bipartisan Infrastructure Law (BIL) enacted as the Infrastructure Investment and Jobs Act, Pub. L. 117-58 (Nov. 15, 2021). V2X systems, sometimes referred to as interoperable connectivity or connected vehicles, are advanced, connected Intelligent Transportation Systems (ITS) systems that utilize interoperable connected systems to implement various applications to improve the safety and efficiency of the transportation system. V2X applications feature the ability of vehicles to communicate with each other, with the roadside infrastructure, and with other travelers such as pedestrians. V2X projects are considered to be a subset of ITS projects. Visit the [ITS Joint Program Office \(JPO\) website](#) for more information and documentation on V2X applications.

### Federal-aid Highway Program Funding Sources

Federal funding to plan, build, and operate V2X systems is available through some existing Federal-aid highway (formula/apportionment) programs, subject to that program's eligibility requirements. In general, program eligibility and requirements for V2X systems and projects follows that of ITS projects. For all Federal-Aid programs, the Federal Share is determined by [23 U.S.C. § 120](#), unless otherwise noted. [Fact sheets](#) exist on the FHWA website for more information on these programs. One thing to keep in mind: each program has certain purposes and characteristics; not all V2X applications or use cases would apply to every listed program. The eligibility of specific V2X applications is subject to the same eligibility criteria as any other project. See Table 1 for specific program information.



Table 1. Potential Federal-aid Highway Program Funding Sources for V2X Deployment

Program Name and Reference	Description and V2X References
<p><b>Carbon Reduction Program (CRP)</b>  <a href="#">CRP Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. 175(c)(1)(E)</a></p>	<p>Established by the BIL, apportioned CRP funds are available to support projects that reduce transportation-related emissions. Under the CRP, the “deployment of infrastructure-based intelligent transportation systems capital improvements and the installation of vehicle-to-infrastructure communications equipment” (including DSRC retrofits) are explicitly eligible (23 U.S.C. § 175(c)(1)(E)). The Federal Share for projects on the Interstate System is generally 90% and 80% for other projects (23 U.S.C. § 120).</p>
<p><b>Congestion Mitigation and Air Quality (CMAQ) Program</b>  <a href="#">CMAQ Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 149</a></p>	<p>CMAQ provides a “flexible funding source to State and Local Governments for transportation projects and programs to help meet the requirements of the Clean Air Act.” Funding is available to reduce congestion and improve air quality in areas that do not meet NAAQ Standards and maintenance areas. Funding is available for the “installation of Vehicle-to-Infrastructure communication equipment” and projects that improve traffic flow, including projects to “implement [ITS] strategies” to reduce congestion and improve air quality (23 U.S.C. § 149(b)(9) and 23 U.S.C. § 149(b)(5)).</p>
<p><b>Highway Safety Improvement Program (HSIP)</b>  <a href="#">HSIP Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 148</a></p>	<p>HSIP provides funding to States to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. All highway safety improvement projects must be consistent with the State’s Strategic Highway Safety Plan, identified through a data-driven process and contribute to a reduction in fatalities and serious injuries (23 U.S.C. § 148(c)). HSIP funding may include the installation of vehicle-to-infrastructure communication equipment (23 U.S.C. § 148(a)(4)(B)(xxv)).</p>
<p><b>National Highway Freight Program (NHFP)</b>  <a href="#">NHFP Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 167</a></p>	<p>The NHFP aims to improve the efficient and safe movement of freight and reduce congestion in rural and urban areas, amongst other goals. For a project to be eligible for NHFP funding, it must contribute to the efficient movement of freight on the NHFN and be identified in a freight investment plan (23 U.S.C. § 167(h)(5) (A)). “[ITS] and other technology to improve the flow of freight” is considered an eligible project (23 U.S.C. § 167(h)(5)(C)(iii)).</p>
<p><b>National Highway Performance Program (NHPP)</b>  <a href="#">NHPP Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 119</a></p>	<p>The NHPP provides support for condition and performance of facilities in the National Highway System (NHS) (NHPP Factsheet). Eligible projects must “[support] progress toward national performance goal for improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the [NHS]” and be consistent with State/MPO plans (23 U.S.C. § 119(d)(1)). “Infrastructure-based [ITS] capital improvements, including the installation of vehicle-to-infrastructure communication equipment” projects that meet the above requirements are eligible (23 U.S.C. § 119(d)(2)(L)).</p>
<p><b>State Planning &amp; Research (SPR)</b>  <a href="#">SP&amp;R Guide</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 505</a></p>	<p>States may use SP&amp;R funds for planning and research including “[research], development, and technology transfer ... in connection with the planning, design, construction, management, and maintenance of highway, public transportation, and intermodal transportation systems.” (23 U.S.C. § 505(a)(5)). The guide addresses SP&amp;R funds that may be used to research new knowledge areas; adapt findings to practical applications by developing new technologies; and transfer these technologies, including the process of dissemination, demonstration, training, and adoption of innovations by users. SP&amp;R funds could be used to help fund V2X system strategic planning.</p>
<p><b>Surface Transportation Block Grant (STBG) Program</b>  <a href="#">STBG Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 133</a></p>	<p>The STBG program provides flexible funding to improve conditions and performance on a wide range of State and local transportation needs (see STBG Factsheet). ITS-related projects are included as eligible expenses, including funding the “construction of infrastructure-based [ITS] capital improvements, including the installation of vehicle-to-infrastructure communication equipment” (23 U.S.C. § 133(b)(1)(D)) and “installation and deployment of current and emerging [ITS] technologies, including the ability of vehicles to communicate with infrastructure, buildings, and other road users.” (23 U.S.C. § 133(b)(17)).</p>



## Discretionary Grant Funding Sources

The [DOT Discretionary Grants Dashboard](#) provides communities with an overview of discretionary grant opportunities that can help meet their transportation needs. The DOT has also put together a [Competitive Grant Funding Matrix](#), which provides information on which entities are eligible for different competitive grants. See Table 2 for specific program information.

Table 2. Discretionary Grant Program Funding Opportunities for V2X Deployment

(FY 2022-2026)

Program Name and Reference	Description and V2X References
<p><b>Accelerated Innovation Deployment (AID) Demonstration Program</b>  <a href="#">AID Demo Webpage</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 503(c)(2)(B)</a></p>	<p>The AID program provides funding to incentivize implementation of innovative projects in highway transportation. The AID Demonstration program provides funding for eligible entities to accelerate the implementation and adoption of innovation in highway transportation. The AID Demonstration program is one initiative under the Technology and Innovation Deployment Program (TIDP) approach providing funding and other resources to offset the risk of trying an innovation.</p>
<p><b>Advanced Transportation Technology and Innovation (ATTAIN/ATTIMD) (Formerly ATCMTD)</b>  <a href="#">ATTAIN Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 503(c)(4)</a></p>	<p>The ATTAIN program provides grants to “deploy, install, and operate advanced transportation technologies to improve safety, mobility, efficiency, system performance, intermodal connectivity, and infrastructure return on investment.” (23 U.S.C. § 503(c)(4)(A)). Eligible activities will focus on advanced transportation and congestion management technologies, including “advanced safety systems [(V2V, V2I)]” and “retrofitting DSRC systems that are part of an existing pilot to C-V2X technology” (23 U.S.C. § 503(c)(4)(E)). Other V2X project activities may be eligible as well. At least 20% of the funds are made available to project serving rural areas. In total, between 5 and 10 awards are made each year.</p>
<p><b>Congestion Relief Program</b>  <a href="#">Congestion Relief Factsheet</a>  <a href="#">Legislative Authorization: 23 U.S.C. § 129(d)</a></p>	<p>The Congestion Relief Program provides grants for innovative, integrated, multi-modal solutions to congestion relief in urbanized areas with a population &gt;1M. The program is focused on improving intermodal integration, reducing congestion during peak travel times, and pricing related to parking, roadway use, or congestion. Grants must be \$10M or greater (23 U.S.C. § 129(d)(5)).</p>
<p><b>Multimodal Project Discretionary Grant opportunity (MPDG)</b>            [Combines Rural, INFRA, and Mega programs]  <a href="#">MPDG Webpage</a>  <b>Legislative Authorization:</b>  <b>Mega: 49 U.S.C. § 6701</b>  <b>INFRA: 23 U.S.C. § 117</b>  <b>Rural: 23 U.S.C. § 173</b></p>	<p>This funding supports three major discretionary grant programs (Mega, INFRA, and Rural) that involve surface transportation projects designed to strengthen supply chains, spur economic development, and improve safety and daily life. Applications for funding are being solicited together under a single opportunity titled the Multimodal Project Discretionary Grant program. V2X implementation could be part of the infrastructure and operations solution proposed.</p>
<p><b>Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Program (formerly BUILD)</b> <a href="#">RAISE Webpage</a>  <a href="#">Legislative Authorization: 49 U.S.C. § 6702</a></p>	<p>RAISE discretionary grants are “for investments in surface transportation that will have a significant local or regional impact” and align with DOT’s strategic goals (<a href="#">FY ‘24 NOFO</a>). The eligibility requirements of RAISE allow project sponsors at the State and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs. V2X implementation could be part of the infrastructure and operations solution proposed. Innovation technology (including connectivity) use is listed as a selection criterion (49 U.S.C. § 6702(d)(4)).</p>





Program Name and Reference	Description and V2X References
<p><b>Safe Streets and Roads for All (SS4A) Program</b>  <a href="#">SS4A Webpage</a>  <b>Legislative Authority: BIL § 24112</b></p>	<p>The SS4A program provides grants to fund regional, local, and Tribal initiatives to prevent roadway deaths and serious injuries. Applicants must first develop a comprehensive safety action plan or have an existing plan that meets program criteria. Money can be used to (a) develop a comprehensive safety action plan, (b) planning, design, and development activities, or (c) carry out identified strategies/projects (BIL § 24112). Grants are either issued as Planning and Demonstration Grants or Implementation Grants. Technology-focused pilot programs including ITS and V2X are eligible as demonstration grant projects, and implementation grants can support the adoption of innovative technologies or strategies for safety. The BIL sets aside 40% of the funding each FY for planning activities.</p>
<p><b>The Strengthening Mobility and Revolutionizing Transportation (SMART) Grants Program</b>  <a href="#">SMART Webpage</a>  <b>Legislative Authorization: BIL § 25005</b></p>	<p>Established to “conduct demonstration projects focused on advanced smart city or community technologies and systems in a variety of communities to improve transportation efficiency and safety”, the SMART Grants Program will fund projects that focus on using technology interventions to solve real-world challenges facing communities (BIL § 25005). The SMART Program gives priority to applications that demonstrate community technologies in a repeatable and scalable way, data sharing, encourage private-sector innovation, encourage adoption of smart city technologies, among others. Connected Vehicles and Coordinated Automation are explicitly called out as eligible project categories, amongst others.</p>

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