

Frequently Asked Questions

FAST Act Section 1413 –

Alternative Fuel Corridor Designations

Updated November 2019 to Support Round 4

General Designation Process Questions

FAQ 1.1: Where can information related to the corridor designations be found?

A: All information related to the Alternative Fuel Corridors (AFC) can be found at:

http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/. This website contains the 2019 Round 4 request for nominations, tables and maps for all designated corridor-ready and corridor-pending corridors as a result of the first three rounds of the designation nomination process, webinar recordings, and other resources related to education and implementation.

FAQ 1.2: Who at FHWA can answer specific questions related to the designated corridors? Who can answer questions about specific corridors?

A: If you have questions that are not addressed by this FAQ or the website, related to the FHWA Corridor Designations, please contact:

- Diane Turchetta at Diane.Turchetta@dot.gov (202-493-0158)
- Mike Scarpino at Michael.Scarpino@dot.gov (617-494-3373)
- Stephen Costa at Stephen.Costa@dot.gov (617-494-3852)

For questions regarding GIS maps or shapefiles, please contact:

- Sara Secunda at Sara.Secunda@dot.gov (617-494-3601)

For questions about specific regions or corridors see points of contact on the corridor-ready and corridor-pending tables found on the AFC website.

FAQ 1.3: What alternative fuels/technologies are included in the corridor designations?

A: Each corridor includes one or more of the following fuel technologies: Electric Vehicle (EV), hydrogen (HYD), propane (LPG), liquid natural gas (LNG), and/or compressed natural gas (CNG).

FAQ 1.4: What was accomplished in the first three rounds of corridor designations?

A: In the first three rounds of designations, 79 nominations were submitted. The nominations resulted in the designation of portions/segments of 100 interstates, along with 76 US highways/state roads. The corridors span 46 states (plus the District of Columbia), and cover over 135,000 miles of the National Highway System (all fuels combined). These designations serve as the basis for a national network of alternative fuel corridors.

FAQ 1.5: What is the length of a corridor-ready corridor?

A: For the purposes of designation, a corridor-ready corridor should have a minimum of 2 stations. Final classifications will be made on a case-by-case basis

FAQ 1.6: How often will FHWA make designation determinations?

A: Based on the rapid changes in both vehicle and fuel technologies, FHWA has determined that it is appropriate for corridor designations to be made on an annual basis. Initial designations were made in November 2016, the second round was announced in March 2018, and the third round was announced in April 2019. FHWA anticipates designating the Round 4 nominations in spring 2020.

FAQ 1.7: What determined the criteria for a corridor-ready corridor vs a corridor-pending corridor?

A: The corridor ready and corridor pending criteria for each fuel type was developed based on information from several resources, including (1) input provided by stakeholders during the two national webinars; (2) common proposed distances between stations on nominated corridors; (3) discussions with US Department of Energy (DOE) and National Renewable Energy Laboratory (NREL) personnel with experience related to siting of alternative fuel infrastructure; (4) input from industry trade associations and (5) alternative fuel vehicle technical capabilities. FHWA will continue to monitor the rapid changes in vehicle and fueling infrastructure technologies to determine if any of the criteria requires an adjustment to better reflect changes in vehicle performance, vehicle adoption, or fueling improvements.

FAQ 1.8: What was the information source used to determine the location of the fueling stations and/or the distance between them along a corridor?

A: FHWA relied on the US DOE's Alternative Fuel Station Locator (<http://www.afdc.energy.gov/locator/stations/>) to verify the location of and distance between existing alternative fueling stations along a nominated corridor to designate highway segments as corridor-ready or corridor-pending.

FAQ 1.9: Does the corridor designation provide any funding for new fueling sites?

A: No. Section 1413 of the FAST Act did not authorize or appropriate any specific funding for these corridors. However, Section 1114 (i.e. the Congestion Mitigation and Air Quality Improvement (CMAQ) Program) of the FAST Act continues funding eligibility for alternative fuel vehicles and infrastructure and adds priority for electric and natural gas vehicle infrastructure located on the designated corridors.

Questions Specific to the 2019 Round 4 Request for Nominations

FAQ 1.10: What is the difference between a “corridor-ready” and “corridor-pending” corridor designation and how does it differ by fuel/technology?

A: *The difference between “corridor-ready” and “corridor-pending” designations is the maximum distance between fueling stations for a fuel type. The maximum distance varies by fuel type and is summarized in the table below.*

Fuel/ Technology	Corridor-Ready NHS Segment has...	Corridor -Pending NHS Segment has...
EV Charging	Public DC Fast Charging, no greater than 50 miles between one station and the next on the corridor, and no greater than 5 miles off the highway. Additionally, each DC Fast Charging site should have both J1772 combo (CCS) and CHAdeMO connectors. Because Tesla stations are proprietary, we are unable to include them.	Public DC Fast Charging separated by more than 50 miles. Location of station/site- no greater than 5 miles off the highway.
Hydrogen*	Public, hydrogen stations no greater than 100 miles between one station and the next on the corridor, and no greater than 5 miles off the highway.	Public, hydrogen stations separated by more than 100 miles. Location of station/site- no greater than 5 miles off the highway.
Propane	Public, primary propane stations no greater than 150 miles between one station and the next on the corridor, and no greater than 5 miles off the highway.	Public, primary propane stations separated by more than 150 miles. Location of station/site- no greater than 5 miles off the highway.
CNG	Public, fast fill, 3,600 psi CNG stations no greater than 150 miles between one station and the next on the corridor, and no greater than 5 miles off the highway.	Public, fast fill, 3,600 psi CNG stations separated by more than 150 miles. Location of station/site- no greater than 5 miles off the highway.
LNG	Public LNG stations no greater than 200 miles between one station and the next on the corridor, and no greater than 5 miles off the highway.	Public LNG stations separated by more than 200 miles. Location of station/site- no greater than 5 miles off the highway.

NOTE – This table reflects the criteria contained in the 2019 Round 4 request for nominations.

* The AFDC Station Locator now defaults to public, retail stations. Retail stations must be open to the public and not have restricted access, such as a card key mechanism. Retail stations must meet J2601 standards and accept standard forms of payment; users do not have to set up a separate payment account to use the station. (Note that private stations cannot be considered retail stations). If the user wants to see public, non-retail stations, or private stations, they can select these options from the AFDC Station Locator “Advanced Filters” options. For more information on the retail station designation, go to: http://www.afdc.energy.gov/fuels/data_methods_stations.html and scroll down to the “Notes about Specific Station Types” section for “Hydrogen Stations.”

FAQ 1.11: Does Round 4 contain any new requirements related to corridor-ready requirements?

A: Yes. A new requirement for Round 4 designation nominations is that for a corridor to be considered EV Ready, the stations/sites should have both J1772 combo (CCS) and CHAdeMO connectors.

FAQ 1.12: Are there any tools or resources available to assist in the development of a Round 4 nomination proposal?

A: Station data and shapefiles to assist with nomination of alternative fuel corridors are available on the U.S. Department of Energy’s Alternative Fuel Data Center (AFDC). These datasets are organized by State and fuel type with filters applied to meet the infrastructure coverage criteria. Additionally, the site contains a prototype mapping tool to explore potential corridors by fuel. These resources can be found at <https://www.afdc.energy.gov/corridors> . Additional resources are listed in the Round 4 Request for Nominations section titled *Corridor Planning/Analysis Tools and Resources to Assist with Nomination*.

FAQ 1.13: How can corridor shapefiles or other mapping information be obtained as required in the 2019 process?

A: The required GIS shapefile information should be available from your State DOT or MPOs. The applicant may utilize the FHWA NHS Shapefile as a base layer, and extract out the line segments needed to create a corridor specific GIS shapefile. The applicant can download the NHS shapefile at <https://hepgis.fhwa.dot.gov/fhwagis/#> (by clicking on “Download Data” shown on the second toolbar row of the menu on the top of the webpage and then selecting the **NHS** zip file).

The applicant can also download the existing Alternative Fuel Corridor GIS Shapefile (including Rounds 1-3) to familiarize applicants with the attributes included in the FHWA Alternative Fuel corridor shapefile at <https://hepgis.fhwa.dot.gov/fhwagis/#> (by clicking on “Download Data” shown on the second toolbar row of the menu on the top of the webpage and then selecting the **Alt Fuel Corridors** zip file).

FAQ 1.14: Are shapefiles for both the nominated corridors and associated fueling stations required for Round 4?

A: For Round 4, only shapefiles associated with the nominated corridors are required. The fueling station information **should NOT** be included in the shapefile. This information will be obtained separately by FHWA/NREL during the analysis process and will be based on data from the AFDC station locator.

FAQ 1.15: How should the completed nomination and shapefiles be submitted to FHWA?

A: FHWA has established a process to upload the nomination proposals and the shapefiles. Please email Sara Secunda at Sara.Secunda@dot.gov and instructions will be provided on how to upload these files.

FAQ 1.16: What level of detail is needed for the plan for signage?

A: It is not anticipated that a detailed plan/map be submitted, showing the location of every sign to be installed (although this certainly would be accepted). At a minimum, the proposal should include information related to who the key personnel involved in installing/funding/approving the installation of highway signage (i.e. the State DOT Traffic Engineer) and how the applicant plans to address signage for alternative fuels along the corridor.

Questions on the Interface Between Previous Designations and 2019 Round 4 Request for Nominations

FAQ 2.1: Given that the focus of this process is interstate highways, will state and local roads continue to be considered for Round 4?

A: The 2019 Round 4 process will limit the number of US highways/State roads to **1-2 per nomination** so the “build-out” of fueling/charging infrastructure is focused on the Interstates across the country and flipping corridor-pending Interstates to corridor-ready. As required previously, there must be a compelling case made as to why any US highways/State roads should be considered for designation.

FAQ 2.2: If a station/site needs to have both J1772 combo (CCS) and CHAdeMO connectors to be considered EV Ready, how does this effect previously designated corridors with only one connector type?

A: The previous three rounds of designations allowed a DC Fast Charging station to have either J1772 combo (CCS) or CHAdeMO connectors. FHWA does not plan to change the status of corridors that included stations

with only one connector type, however it is recommended that these stations be prioritized for upgrades to include both.

FAQ 2.3: Can a corridor segment designated as corridor-pending be changed to corridor-ready? Or will a separate designation nomination be required to be submitted?

A: If the number of stations along a designated corridor changes (i.e. new stations being added or existing stations being closed), which results in the classification of the corridor being changed from corridor-pending to corridor-ready (or vice versa), a formal designation proposal through this current request for nominations is **not needed**. However, if a corridor is extended beyond its starting or ending points, a formal designation proposal is needed for the extension.

Fuel-Specific Questions

FAQ 3.1: What is the definition of a “primary” propane fueling station?

A: For propane stations, FHWA determined that only “primary” stations (i.e., those stations that are capable of fueling propane motor vehicles at a rate similar to filling a gasoline vehicle, accept credit and/or fleet cards, and provide vehicle fueling during normal business hours) would be considered when determining infrastructure coverage along a nominated corridor. The designation of “primary” stations is used on the Alternative Fuel Station Locator, as a result of a collaboration between DOE/NREL and propane industry partners. For more information go to: http://www.afdc.energy.gov/fuels/data_methods_stations.html and scroll down to the “Notes about Specific Station Types” section for “Propane (Liquefied Petroleum Gas, LPG) Stations”.

FAQ 3.2: What is the definition of a “non-road” hydrogen fueling facility? Will these facilities be counted in corridor-pending and corridor-ready designations?

A: A non-road hydrogen fueling facility is one that is currently being used for non-road transportation purposes (i.e. forklifts). If a hydrogen refueling station currently used for non-road transportation purposes is being used to support the nomination process, then the station must be compliant with SAE J2601 standards, and meet all of the criteria outlined in the call for nominations for a hydrogen corridor including being publicly accessible.

FAQ 3.3: Why were Tesla charging stations excluded from the corridor designations?

A: Since the charging network can only be utilized by Tesla vehicles, it was considered as a proprietary network and therefore did not meet the designation criteria of being publicly accessible.

FAQ 3.4: Why were biofuels excluded from the corridor designations?

A: Biofuels were not specifically included in Section 1413 of the FAST Act. Therefore, FHWA does not have the authority to designate biofuel corridors.

Coordination with DOE’s Alternative Fuel Data Center (AFDC)

FAQ 4.1: Who should be contacted if a new station opens along a corridor and/or an existing station is no longer operating?

A: The US DOE’s Alternative Fueling Station Locator is being used as the primary station data source along designated corridors. Therefore, new and updated fueling station information, as well as stations that have gone out of service, need to be reported to NREL via the methods outlined below. FHWA is working with NREL to develop a process to identify these situations, and the corridor point of contact will be notified of any change in designation status.

Adding New Stations:

The following are the steps to add or change a station in the database:

1. Perform a quick search of the database using the Station Locator (<http://www.afdc.energy.gov/locator/stations/>) to ensure the station isn’t already in the database. The “Public Stations” query allows users to search for stations by address, zip code, and State. Users can also filter by fuel type and fuel-specific filters, such as electric vehicle charging station level, and propane and hydrogen station classification. The “Advanced Filters” tab provides additional filters. Note that the default “Public Stations” search will return only existing, public stations; use the “Advanced Filters” to expand the search.
2. If you are submitting information for a single station or just a few stations, use the online submission form by selecting “Submit New Station” under the Station Locator map, or by visiting the following link <http://www.afdc.energy.gov/locator/stations/places/new>. After submittal, you will receive an email confirmation. Alternatively, you may send the station information via email to the Technical Response Service (TRS) at technicalresponse@icf.com.

If you are submitting information for multiple stations, email the TRS at technicalresponse@icf.com and provide the information in an Excel spreadsheet (the TRS will provide a template upon request), Word document, or via email text.

3. At a minimum, include the fuel type(s), station name, street address, city, State, zip code, station phone number, and a point of contact. Refer to the online submission form or the spreadsheet template for other data fields.

The TRS will follow up with the station directly to confirm the information and gather additional details, such as hours of operation. All stations will be verified before they are added to the database.

Updating Existing Station Information:

To update a station that is already listed in Station Locator, you may do one of the following:

1. Search for the station on the Station Locator. On the map, select the icon for the station of interest and select “Report a change” in the lower left corner. Make your updates within the form and select Submit. After submittal, you will receive an email confirmation.
2. Send an email to the TRS at technicalresponse@icf.com and provide the specific station information to be updated.

Removing an Existing Station:

To request that a station be removed, use the “Report a change” function or send an email to technicalresponse@icf.com and provide the specific station that needs to be deleted. Please include information about why the station was closed or why a fuel type was discontinued (if known). The TRS will follow up with the station or point of contact directly to confirm the status.

Signage Questions

FAQ 5.1: Where can I find information on the national *Manual on Uniform Traffic Control Devices for streets and highways* (MUTCD)?

A: Information on the national MUTCD can be found on the Federal Highway Administration's website: mutcd.fhwa.dot.gov/.

FAQ 5.2: Who do I contact regarding questions on signage in my State?

A: Though the Federal Highway Administration sets the standards for sign design and application, we do not own or operate the highways in the states, including those that make up the Interstate Highway system. Therefore, the first line of contact should be the State traffic engineer or traffic engineering department at your State Department of Transportation (DOT), which owns and operates all state highways, including the Interstate system within the State. They have jurisdiction over signage installation and all signs on State highways must be approved by the corresponding State DOT. A list of state contacts can be found at: <https://cote.transportation.org/membership/>. It may also be necessary to talk to the county traffic engineer regarding signs on roads owned and maintained by a county. If in doubt who is the appropriate contact for a highway in a state, contact the State DOT first and they will advise you.

FAQ 5.3: What guidance will be issued to the Federal Highway Division Offices and state DOTs for sign installation along designated corridors?

A: A [guidance memo](#) was issued in December 2016 from FHWA's Office of Operations that shows the sign designs for the fuels in the alternative fuels program and contains provisions for use of these signs on alternative fuel corridors. This guidance must be combined with the provisions in the MUTCD to determine the appropriate use and placement of Alternative Fuels General Service signs. The information was sent to all FHWA Division and Federal Lands Highway Offices to be shared with their respective State DOT's and Metropolitan Planning Organizations (MPO's) located within their jurisdictions.

FAQ 5.4: What is the difference between a general service sign and a specific service sign?

A: A General Service sign guides road users to motorist services such as gas, food, lodging, and hospitals, that are generally not within sight of motorist nor generally available at frequent intervals while driving. General Service signs are typically used only on freeway and expressways as motorist services on conventional roads are more frequently available and assessable on these roadways. General Service signs are also generic in that they do not identify the brand of the service facility providing the service. For example, below are the General Service symbol signs for a hospital, hotel and food establishment. See MUTCD Section 2I for more information on General Service signs.



In contrast, Specific Service signs **are defined as guide signs that provide road users with business identification and directional information for eligible services and attractions. Eligible service categories are limited to gas, food, lodging, camping, attractions, and 24-hour pharmacies. For example, below is a Specific Service sign for camping and food showing the specific business logos for each establishment. See MUTCD Section 2N for more information on Specific Service signs.**



The decision on when and where to install signs on a highway, including General Service and Specific Service signs, is up to the owner of the highway. Most states have policies detailing the provisions for when, where and how a General or Specific Service sign can be installed.

Note: *Some states do not permit the installation of Specific Services signs. The determination to install a sign, or a type of sign, is up to the state.*

FAQ 5.5: Can an alternative fuel station/facility be included on Specific Service signs?

A: No. Alternative fuel stations/facilities are not eligible for Specific Service signing as they do not fit into one of the restricted categories for these signs. This would require a rule making change to the MUTCD.

FAQ 5.6: How do I know what fuel technologies are supported on any specific corridor?

A: General service signs for each fuel available on a given corridor will be placed under the larger Alternative Fuel Corridor sign and independent of the Alternative Fuel Corridor sign further along the corridor in advance

of exits. If a corridor has more than three fuel types available, then a plaque should be placed under the larger Alternative Fuel Corridor sign with the two or three-letter descriptions of each of the fuels available (e.g. CNG – LNG – LPG – HYD). Please reference the FHWA [guidance memo](#) on Alternative Fuel Corridor Signing for more detail. The approved MUTCD General Service symbol sign for alternative fuel are:



FAQ 5.7: Will the signs look the same from state to state?

A: The design of all AFC signage should follow the specifications outlined in the December 2016 guidance memo.

FAQ 5.8: If states do not have a state MUTCD or state supplement, do signage requirements always default to the national MUTCD?

A: Yes. The states must have a FHWA approved state MUTCD or Supplement, or must adopt the National MUTCD for state use. FHWA only approves State MUTCDs or supplements that are in substantial conformance with the National MUTCD, which means all Standard Statements must be included in their manuals and all guidance statements must also be in their manual unless they have an acceptable engineering reason explained to FHWA for not including them.

FAQ 5.9: MUTCD Section 2I.03, Line 06, states that General Service signs for Gas, Diesel, EV charging and/or other Alternative Fuels “should” have “1. Vehicle services such as gas, oil, and water; 2. Modern sanitary facilities and drinking water; 3. Continuous operations at least 16 hours per day, 7 days per week; and 4. Public telephone”. Not many alternative fuel stations would have these services. Does the use of “should” in the MUTCD imply an optional/non-mandatory requirement?

A: The State DOT may exclude one or more of these requirements if they have a rational reason for doing so. It is up to the individual State DOT to set their policies regarding additional services or amenities a service station must have to be eligible for a General Service Sign.

FAQ 5.10: If a State DOT has adopted the use of the national MUTCD, can they mandate the guidance statement in MUTCD Section 2I.03, Line 6 regarding additional service at alternative fuel stations?

A: Yes. Each State establishes its own eligibility criteria for other services or amenities required at a service facility, including an alternative fuel facility, in order to be eligible for highway signs.

FAQ 5.11: What federal/state and/or private funding can be used for signage?

A: State DOT’s have several options for paying for signage, but this is up to state policy. Traffic signs are generally eligible for Federal-aid funding within projects funded by FHWA. However, there is no requirement for States to use Federal-aid funds to pay for signing; that is a State DOT decision.

For Specific Service signs, most states require the facility owner to pay an annual fee to have their logo on the sign. **However, as stated earlier it would be inappropriate to add an alternative fuel logo to a Specific Service Sign.** General Service signs are different and state policies vary regarding funding for them.

The installation of highway signage associated with Alternative Fuel Corridors (AFC) has been determined to be an eligible expense under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. CMAQ funds may be used for the purchase and installation of AFC related signage-when determined to serve an associated education and outreach function for a specific AFC. Title 23 U.S.C. Section 149(c)(2) specifically calls out electric vehicle (EV) and natural gas (CNG or LNG) refueling infrastructure as being eligible for CMAQ funding anywhere in a state, while other alternative fuel infrastructure projects may be restricted to nonattainment or maintenance areas. See Interim CMAQ Program Guidance (https://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2013_guidance/index.cfm) for more information related to project eligibility.

FAQ 5.12: Are there any federal guidelines associated with fees for these General Service/Specific Service signs?

A: No. Any fees that may be required are up to the State or other roadway owner.

FAQ 5.13: What role, if any, do the FHWA Division Offices play on signage issues?

A: The FHWA Division Offices approve the State MUTCD or State MUTCD Supplements. They also play a role in determining eligibility of signs paid for with Federal-aid funding. They can also play a role in speaking to the State DOT about any issues that may arise, but ultimately the decision on installing signage rests with the State itself.

Resources

FAQ 6.1: What resources will FHWA provide designated corridors?

A: The designation of alternative fuel corridors is just one step towards the strategic deployment of alternative fueling infrastructure. FHWA will provide technical and analysis support to assist state and local agencies in their efforts to change corridor-pending corridors to corridor-ready.

FHWA is supporting expansion of the national alternative fuel corridor network by implementing a series of Alternative Fuel Corridor Convenings in various regions of the country. The purpose of the Convenings is to facilitate regional partnership development, strengthen coordination among public and private stakeholders within and among neighboring States, evaluate priorities and identify critical infrastructure gaps, and to develop regional strategies for advancing alternative fuel vehicle adoption, fueling infrastructure development, and corridor growth. During 2018-2019, regional Convenings were held in Minnesota (Midwest), South Carolina (Southeast), Texas (South Central), Rhode Island (Northeast /Mid-Atlantic), and Utah (Intermountain West). Information related to these gatherings can be found at: <http://altfueltoolkit.org/regional-convenings/>

In July 2019, FHWA released a solicitation for an applied research funding opportunity to assist transportation agencies with planning for the deployment of alternative vehicle fueling and charging facilities along Interstate corridors across the nation with the goal of filling infrastructure gaps and designating targeted corridors as “ready”, per the criteria established under FHWA’s Alternative Fuels Corridor (AFC) Program. The Alternative Fuels Corridor Deployment Plans funding opportunity applied to both passenger and freight vehicles, and was available to State departments of transportation and metropolitan planning organizations. In October 2019, FHWA announced that five projects were selected for funding:

- Illinois DOT – IDOT in coordination with New Jersey, Pennsylvania, Indiana, Ohio and Iowa will develop an alternative fuels corridor deployment plan for the installation of both electric vehicle charging and

compressed natural gas fueling infrastructure along the I-80 corridor from New Jersey to the Iowa/Nebraska border.

- Pima Association of Governments (PAG) - will develop an alternative fuels corridor deployment plan for the installation of both electric vehicle charging and compressed natural gas fueling infrastructure along the I-10 corridor in Arizona.
- Tennessee DOT - will develop an alternative fuels corridor deployment plan for the installation of both electric vehicle charging and compressed natural gas fueling infrastructure along the I-40 corridor from North Carolina to the Arkansas/Oklahoma border.
- Pennsylvania DOT - will develop an alternative fuels corridor deployment plan for the installation of both electric vehicle charging and compressed natural gas fueling infrastructure along the I-81/I-78 corridors from the Pennsylvania/Maryland border to the Pennsylvania/New Jersey border.
- North Texas Council of Governments (NCTCOG) - will develop an alternative fuels corridor deployment plan for the installation of both electric vehicle charging and hydrogen fueling infrastructure along the IH-45 corridor from the seaports of Houston/Galveston to the inland ports of Dallas/Ft. Worth.

Finally, the www.altfueltoolkit.org website was developed as part of a pooled fund initiative led by the Oregon Department of Transportation and supported by the U.S. Department of Transportation Federal Highway Administration. The "Toolkit" website is intended to assist state and local transportation agencies interested in promoting the use of alternative fuel vehicle technologies, and accelerate the installation of charging/fueling facilities. The Alternative Fuel Toolkit can help you learn about alternative fuels and vehicles; plan your infrastructure and funding; and act using the AFV Action Guide, facilitation materials, and other resources. Resources were developed in conjunction with a set of national workshops and reflect the latest stakeholder-input and research.