

# National Highway System Expansion Working Group Report



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### Executive Summary

The most recent federal surface transportation act, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), expanded the National Highway System (NHS)—the network of major highways linking most parts of the United States—to include all principal arterials. This change added 632 miles of Oregon roads to the NHS on October 1<sup>st</sup>, 2012, including 412.7 miles of state highways and 219.3 miles of local agency roads. In response to concerns from local governments and other stakeholders about the potential impacts of this expansion, the Oregon Department of Transportation (ODOT) formed an NHS Expansion Working Group consisting of technical experts within ODOT, representatives from the Federal Highway Administration (FHWA), metropolitan planning organizations (MPOs) and local governments to assess impacts, work through issues and develop solutions.

ODOT will work with local governments to review the functional classification of principal arterials as part of the decennial federal aid urban area boundary and statewide functional classification review, which will kick off in 2013 and be completed by 2015. Through this process, some routes that do not meet the criteria to be a principal arterial may be reclassified as minor arterials and may be removed from the NHS with the approval of FHWA.

The main impacts of expanding the NHS relate to federal design and project oversight requirements. Projects on NHS routes must follow AASHTO or Oregon Highway Design Manual standards, or must seek a design exception. However, AASHTO standards have a significant amount of flexibility to tailor solutions to each project's local context. What's more, flexible approaches developed by ODOT and FHWA through the working group's efforts will allow local governments to exercise their engineering judgment and approve design exceptions on many projects on the NHS. This will ensure that local governments retain significant control over their own roads and limit to an appropriate level the oversight role played by ODOT and the FHWA.

New federal performance management requirements included in MAP-21 are focused on the NHS, which will require ODOT to work closely with local owners of NHS routes on collecting and reporting data. However, these performance management requirements are unlikely to directly impose additional requirements on local governments to invest in NHS routes or penalize them if the condition of these routes slips (at least in the short term). Since the federal Highway Beautification Act requires states to control outdoor advertising signs (mainly billboards) on all NHS routes, signs on new NHS routes that were not previously regulated have become subject to regulation, and ODOT's Sign Program will be issuing permits through a streamlined application process.

The NHS is not tied to truck size and weight or truck access requirements, nor do NHS routes come with any special mobility standards, nor are they directly tied to route classifications in the Oregon Highway Plan.

### Background

The most recent federal surface transportation act, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), expanded the National Highway System (NHS)—the network of major highways linking most parts of the United States—to include all principal arterials, the main thoroughfares that carry heavy volumes of traffic. This change was proposed by the U.S. Department of Transportation as a means of standardizing the NHS across states, as some states included more or less of their principal arterial network in the NHS than others when it was originally designated.

This change added 632 miles of roads in Oregon to the NHS on October 1<sup>st</sup>, 2012. Of these miles added to the NHS, 412.7 miles (65 percent) were on state highways owned and operated by ODOT, while the remaining 219.3 (35 percent) were local agency roads. Some communities—particularly the City of Salem—have a much more extensive network of principal arterials than other areas of the state.

Expanding the NHS comes with some implications. Projects on NHS routes face a higher level of interest from the federal government and must process a design exception with the Federal Highway Administration (FHWA) or ODOT if they do not meet AASHTO design standards or the Oregon Highway Design Manual. In addition, because MAP-21's performance management system is strongly focused on the NHS, conditions on local agency roads will factor into whether Oregon meets its targets for the condition and performance of the NHS. However, the NHS is not tied to truck size and weight or truck access requirements; these are based on the National Network, a separate but frequently overlapping network. NHS designations do not come with any special mobility standards, nor are they directly tied to route classifications in the Oregon Highway Plan.

To respond to concerns from local governments and other stakeholders about the potential implications of this expansion, ODOT formed an NHS Expansion Working Group consisting of technical experts within ODOT, representatives from FHWA, MPOs and local governments to work through potential issues and find solutions. This brief report lays out the conclusions of this group and steps that need to be taken to ensure smooth implementation.

### Making Modifications to the Expanded NHS

Local governments that would like to see a street removed from the NHS will have an opportunity to have the classification of the street reviewed as part of the upcoming federal aid urban area boundary and statewide functional classification review. The review takes place on a decennial basis to redraw the federal aid urban boundaries after each Census and review the functional classification of roads. Local governments may contact ODOT's Road Inventory and Classification Services Unit at any time to request a change to a road's federal functional classification or NHS status. However, because this major addition to the NHS system occurred in close proximity to the upcoming statewide FC review, the FHWA Oregon Division Office has asked that requests for functional classification and NHS

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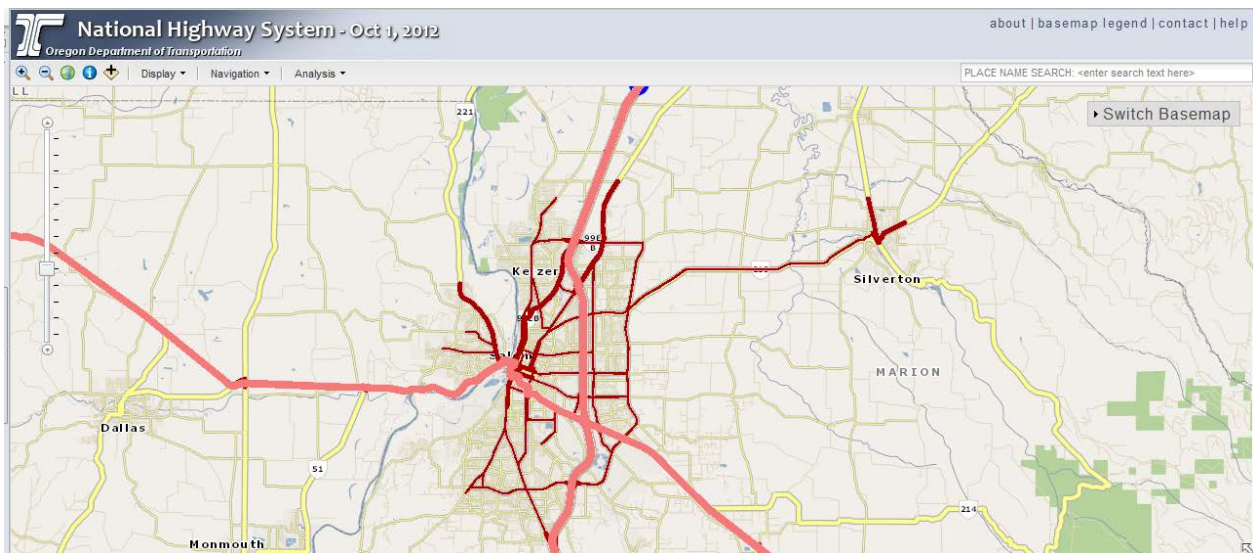
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updates generally take place as part of the statewide functional classification review. This allows for a comprehensive system review rather than an ad hoc, road by road review. The FHWA Oregon Division Office will need to approve all functional classification changes.

While all principal arterials as of October 1, 2012 were added to the NHS, the two designations are not inherently linked going forward. As a result, simply downgrading a road from a principal arterial to a minor arterial will not automatically remove it from the NHS. Nonetheless, the FHWA Oregon Division Office has asked that principal arterials and the NHS generally remain closely aligned, though the Division Office may approve decoupling the two designations where it can be justified.

As a result, removing a local road from the NHS will be a two step process. First, through the federal functional classification review, local governments will need to show that the road does not fit the federal definition of a principal arterial, not just that they do not wish to have the road remain on the NHS because of the potential impacts. Second, a separate request to remove the route from the NHS must be submitted by the local agency to ODOT with concurrence from the affected local jurisdictions (including the MPO in an urbanized area). After an ODOT and FHWA Oregon Division Office review, the Division Office will submit the request to FHWA headquarters for final approval.

The functional classification review will begin in 2013, though the exact timing of the initiation of the review will depend on when the FHWA functional classification manual and guidance on functional classification reviews is finalized. The review will be facilitated by ODOT's region planning staff, who will work with local governments and metropolitan planning organizations. The review is expected to be completed by mid-2015.



ODOT's GIS unit has developed an interactive online map showing the routes added to the NHS, including local streets. A link to the application is available on ODOT's NHS Expansion webpage.

### Oversight of Local Projects on the NHS

Some local governments have expressed concern about loss of local control of their roads that have been added to the NHS. While local agency roads on the NHS will face some additional requirements, local governments will retain significant local control, particularly given flexibility in design standards and flexible approaches to design exceptions that ODOT and FHWA have developed. Though projects on the NHS need to meet AASHTO or ODOT design standards, the expansion of the NHS is not anticipated to significantly increase the role of ODOT and FHWA in local transportation projects.

### Design Standards

New construction, reconstruction and preservation projects on NHS roadways must use AASHTO standards or ODOT design standards if on an ODOT facility. This requirement applies to projects on the NHS, regardless of whether they are funded by the federal government or by state and local resources. FHWA has agreed to allow for two sets of standards on the NHS: while projects on state highways on the NHS are required to follow the ODOT Highway Design Manual, which is more prescriptive than the AASHTO manual in some areas, projects on local government NHS roads can follow AASHTO standards, this may pose challenges for some local governments that may not currently follow AASHTO standards. ODOT has consulted the Motor Carrier Transportation Advisory Committee (MCTAC) about this dual treatment of design standards on NHS roads, particularly related to vertical clearance and lane widths, and MCTAC did not express any concerns on impacts on the trucking industry.

Two areas of particular interest to local governments are vertical clearance and lane width standards. ODOT has put in place a 17 foot vertical clearance standard for the NHS, which is higher than AASHTO standards of 16 feet for most routes. Local governments will not be subject to this ODOT standard, however, and can use the AASHTO standard instead. AASHTO standards provide a range of lane widths based upon roadway culture and characteristics such as functional classification, volumes, speeds, and large vehicle traffic. For urban arterials, AASHTO standards allow for 10 foot lanes in constrained areas for arterials that have low truck and bus volumes and are low speed routes. AASHTO notes that 11 foot lanes are used quite extensively in urban arterial street design.

Guard rails and other roadside safety features are also a potential issue, as AASHTO standards require upgrading roadside safety features that don't meet safety standards when undertaking highway projects, including pavement preservation projects. Local agencies are concerned that this requirement could add significant cost to some pavement preservation projects, reducing the number of miles that can be resurfaced, particularly if there are no funding sources available to help pay for the additional costs.

Some local agencies have also expressed a concern about requirements for shoulders in urban areas given the prevalence of bicycle lanes and on-street parking. While AASHTO guidelines consider shoulders desirable, the standards look at total roadway width, which

can be used for shoulders, bicycles, or parking as deemed appropriate. Similarly, some advocates for non-motorized transportation have expressed concern about whether inclusion in the NHS would preclude designing streets to facilitate active transportation or encourage mobility of vehicles at the expense of bicyclists and pedestrians. However, AASHTO standards have significant flexibility to design features for non-motorized users, and inclusion in the NHS does not come with any special vehicle mobility standards.

**Design Exceptions**

Projects on local agency NHS roads that fall outside the AASHTO standards can process a design exception with ODOT and FHWA. In many cases, a formal design exception is not needed because the AASHTO standards offer a range of options depending on traffic volumes and other conditions. ODOT plans to update the state’s highway design manual to clarify the standards and design exception procedures given the inclusion of these local agency roads. ODOT staff reviewing these requests will be educated about this process and will be able to provide guidance about when projects do not require a formal design exception request. For example, as noted above 10 foot lanes may be acceptable in appropriate locations without requiring a design exception.

For most projects on the NHS (including federally-funded projects), ODOT will be able to approve design exceptions, though FHWA will need to review and approve design exceptions for all projects subject to Full Federal Oversight (see below). ODOT and FHWA have developed a streamlined procedure for non-federally funded projects on local agency roadways. For these projects, local governments will be able to process and approve design exceptions. Local agencies will need to maintain a list of these design exceptions

**Authority to Approve Design Exceptions**

		<b>Funding Source</b>	
		<b>Federal</b>	<b>Non-Federal</b>
<b>Type of Agency</b>	<b>Certified Local Public Agencies on a local agency facility</b>	Local Government	Local Government
	<b>Non-Certified Local Public Agencies</b>	ODOT	Local Government

\*For local agency roadway projects not subject to Full Federal Oversight. FHWA will review and approve design exceptions for all FFO projects. ODOT will review and approve design exceptions for all projects on an ODOT facility and on bridges on the ODOT inventory list.

and provide ODOT contract plans and design exceptions either on a project by project or annual basis. ODOT will act as an auditor, periodically reviewing design exceptions approved by local governments to ensure that local governments are meeting requirements and working with local governments to correct any issues. As is the usual procedure, certified local agencies will be able to take on ODOT's role of approving design exceptions on federally-funded projects, except those on bridges and state highways.

For more information on these design standards and processes, see the document *NHS Design Standards for ODOT and Local Agencies* posted on ODOT's NHS Expansion webpage.

### **Full Federal Oversight**

FHWA applies Full Federal Oversight (FFO), a heightened level of federal review, on specific projects that are complex and/or high risk. Under FFO, FHWA reviews design exception requests and directly oversees other aspects of the project. While some local projects on the NHS will be selected for FFO, this determination is based on a project's risk and complexity, not based on whether it is on the NHS, so the addition of local agency roads to the NHS should not increase the number of FFO projects.

### **Certified Local Public Agencies**

Certified local public agencies (CLPAs) are local governments that have gone through an extensive process to demonstrate their capability to administer federal-aid highway projects. FHWA has agreed to extend typical authorities of CLPAs to the NHS.

CLPA projects that are on locally owned and maintained NHS facilities may be administered by the CLPA using AASHTO standards subject to the Stewardship Agreement between FHWA and ODOT. This applies to both federally funded certified projects and state/locally funded projects. While ODOT will retain responsibility for work on state highways that are NHS facilities, local agencies may perform work on an ODOT-owned NHS route if ODOT and the local agency agree and ODOT provides written approval authorizing such work. The written approval is in the form of an intergovernmental agreement and a permit which includes language that details the roles and responsibilities of the local agency and the state.

### **Funding for Projects on the NHS**

Under MAP-21, nearly two-thirds of the federal highway funding flowing to Oregon is focused on the National Highway System, leading some local governments to question whether it might be financially advantageous to have their roads included in the NHS. However, the expansion of the NHS brings no additional resources to Oregon for the NHS, as funding levels under the National Highway Performance Program (NHPP) are not based on a state's NHS mileage. What's more, ODOT makes use of the flexibility of the federal-aid highway program to make federal funds fit the projects selected by the state in various programs, rather than selecting projects on the NHS specifically to match the amount

provided under the NHPP. ODOT combines NHPP money with other state and federal funding sources in the Statewide Transportation Improvement Program, with projects selected based on their priority for the transportation system as a whole rather than on whether they are on an NHS route. As a result, there is currently no mechanism in ODOT's project selection processes that would increase the likelihood of an NHS facility receiving additional federal resources. However, local governments may be able to secure funding for NHS routes through the Enhance program in the 2015-2018 STIP.

### **Performance and Asset Management Requirements**

MAP-21 creates a federal performance and asset management framework that is heavily focused on preserving and improving the condition and performance of the NHS. Under this framework, the U.S. Department of Transportation (US DOT) will create performance measures in the following areas related to the NHS:

- condition of pavements on the NHS (excluding the Interstate);
- condition of bridges on the NHS; and
- performance of the NHS (excluding the Interstate System).

Once US DOT has set specific measures in these areas, ODOT will be required to set targets for Oregon's NHS network and report outcomes. In addition, MAP-21 sets a minimum condition threshold for bridges on the NHS: if more than 10 percent of the total deck area of bridges on the National Highway System is located on bridges that have been classified as structurally deficient, the state will face a minimum spending requirement for NHS bridges.

States will also be required to develop an asset management plan for the NHS that addresses risk-based asset management and performance-based management. States are encouraged to include in their plan all infrastructure assets within the NHS corridor right of way. Guidance from FHWA on development of the NHS asset management plan will be needed.

Given the focus of the federal performance management system on the NHS, ODOT will have to work extensively with local governments to collect and report data on the condition and performance of local agency roads on the NHS. ODOT will also need to work with local governments on the development of the NHS asset management plan. While there are limited penalties and spending requirements associated with the performance management system, the requirement for states to set targets for the conditions and performance of NHS routes could push states and local governments to invest more resources in NHS facilities, potentially at the expense of other transportation needs. ODOT will monitor these requirements closely and work with local governments to implement the performance and asset management system.



### Outdoor Advertising Signs

Under the federal Highway Beautification Act, states are required to have effective control of Outdoor Advertising Signs (mainly billboards) on all NHS routes or face loss of significant federal highway funding. As a result, new NHS routes that were not previously regulated have become subject to the federal law and the Oregon Motorist Information Act. Outdoor Advertising Signs require a state permit, are regulated for size, spacing and zoning, and must meet local codes. Since all state highways are already regulated, the expansion of the NHS only adds local agency roads to the list of controlled routes.

ODOT's Sign Program has inventoried signs on the newly controlled routes and has engaged the industry in the permitting process. Sign companies will be able to apply for a permit for signs on new NHS routes and at a reduced fee. Given the timing of the functional classification review, the Sign Program will need to move forward with permitting before decisions may be made that take some routes off the NHS. For any signs on routes that are removed from the NHS and are no longer subject to state sign regulation, ODOT will cancel those permits and refund any application fee paid.

### For Additional Information

ODOT has developed an NHS Expansion webpage that includes resources, including:

- An interactive map of the expanded NHS
- A list of local road and bridges now included in the NHS
- Information on design standards for state and local NHS routes
- Links to ODOT resources on federal functional classification
- Links to FHWA resources on the NHS expansion

This webpage is available at [www.oregon.gov/ODOT/GOVREL/Pages/ODOT's-National-Highway-System-Expansion-webpage.aspx](http://www.oregon.gov/ODOT/GOVREL/Pages/ODOT's-National-Highway-System-Expansion-webpage.aspx).

### Key Contacts

The following contacts in ODOT and FHWA are available to answer questions about the expanded NHS.

**Heather King, ODOT Road Inventory and Classification Services Unit Manager,** [heather.l.king@odot.state.or.us](mailto:heather.l.king@odot.state.or.us), for questions about NHS designation and the functional classification review process

**Satvinder Sandhu, FHWA Oregon Division Office,** [satvinder.sandhu@dot.gov](mailto:satvinder.sandhu@dot.gov), for questions about FHWA's approach to NHS adjustments and the functional classification review

**Steve Lindland, ODOT Roadway Engineering Unit Manager,** [steven.r.lindland@odot.state.or.us](mailto:steven.r.lindland@odot.state.or.us), for questions about design standards

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**Mark Foster, ODOT Certification Program, [mark.a.foster@odot.state.or.us](mailto:mark.a.foster@odot.state.or.us)**, for questions about the role of certified local public agencies in administering projects

**Wendy Elstun, ODOT Sign Program, [wendy.s.elstun@odot.state.or.us](mailto:wendy.s.elstun@odot.state.or.us)**, for questions about regulation of outdoor advertising signs

**Travis Brouwer, ODOT Federal Affairs Advisor, [travis.brouwer@odot.state.or.us](mailto:travis.brouwer@odot.state.or.us)**, for general questions about MAP-21 and expansion of the NHS