Chapter 460

Requirements for Transportation Analysis

Transportation projects are designed to improve the overall transportation network for all modes of travel. However, the potential effects of projects on transit, pedestrians, bicycles, rail crossings, ferry operations, airport safety zones, parking, and vehicle traffic on adjacent and connecting roadways need to be evaluated and discussed in the environmental document. The effects can be positive or negative, temporary or long-term. Mitigation for unavoidable impacts, especially construction impacts, should also be discussed. Although this chapter is primarily focused on highway projects, ferry, rail, and airport improvements may have similar impacts that should be evaluated in the environmental document.

Section 24 of FHWA’s Technical Advisory TA 6640.8A requires the analysis to include:

- A review of the local comprehensive transportation and land use plans.
- An evaluation of the proposed project’s consistency with traffic requirements generated by planned land use.
- A discussion of how the project’s short-term impacts and use of resources contribute to the enhancement of the area’s long-term productivity.

In NEPA, the transportation analysis supports the Purpose and Need by providing quantitative measures that demonstrate the effectiveness of the proposed project. It may also provide a method of comparing and contrasting the relative merits of the alternatives. FHWA Technical advisory TA 6640.8A emphasizes the need to consider potential construction and operational impacts to pedestrian and bicycle traffic during the environmental review process.

In SEPA, transportation is considered to be an element of the built environment (WAC 197-11-444). The analysis must consider impacts to:

- Transportation systems
- Vehicular traffic
- Parking
- Safety and traffic hazards
- Waterborne, rail, and air traffic
- Movement/circulation of people or goods

460.01 Requirements for Transportation Analysis

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460.03 Vehicular Traffic
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The transportation analysis draws on data generated during the design process see *Design Manual* Chapter 320 for guidance on traffic analysis and modeling. Compliance with FHWA's *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA* (March 2010) is recommended, but not required for projects that use a travel demand model.

Projects classified as CEs/DCEs will usually need minimal analysis. Documenting temporary construction impacts and ways to minimize those impacts in the Project Summary (see *Design Manual Chapter 1010*) or completion of the SEPA checklist is usually sufficient. If the project has significant construction impacts to traffic, as defined in *Design Manual Chapter 1010*, attach a copy of the Transportation Management Plan to the ECS form. More complex projects may require a more robust analysis and possible completion of a discipline report (see Section 460.06).

### 460.02 Safety

Improving safety throughout the transportation network one of USDOT’s primary goals. FHWA requires consideration of safety for all modes during environmental review. Rigorous analysis may not be reasonable in all cases, but some assessment of safety performance should be included especially if safety is cited in the project purpose and need statement.

Empirical evidence demonstrating effectiveness of safety features in each alternative compared to the No-build alternative is preferred. The *Highway Safety Manual* provides specific guidance for estimating future collisions with and without improvements. The safety performance function calculates the change in exposure based on traffic volumes and facility type to predict potential crash reduction factors.

### 460.03 Vehicular Traffic

The transportation analysis should consider the potential impacts of the proposed project on the adjacent street system to make sure the local system will not be adversely affected by changes in traffic patterns or volumes caused by the project. Use data generated by the traffic analysis prepared during planning or design whenever possible. Consider the following issues:

- Potential creation of new congestion points and congestion points that would be eliminated or reduced.
- Effect of new or revised access points on travel patterns and traffic flow.
- Effect of increased or decreased SOV and HOV volumes.
- Opportunities for Transportation System Management/Transportation Demand Management (TSM/TDM). This includes options such as vanpools/carpools, ramp metering and associated queuing impacts.
- Potential changes in surface street conditions or travel patterns that would affect entering or exiting traffic (of particular concern for Interstate and other limited access facility projects).
- The effect of traffic detours or diversions during construction.
- Potential mitigation for significant adverse effects for both short-term construction impacts and long-term operational impacts.
Refer to the WSDOT Design Manual M 22-01 for design options and constraints when developing alternatives and mitigation for significant impacts to the transportation system. See particularly sections on sight distance, roadside safety, traffic barriers, impact attenuation systems, construction work zone traffic control strategies, and safety rest areas.

460.04 Transit

Highway projects have the potential to benefit and impact transit operations by changing traffic flow and travel patterns. Projects may affect travel time, relocate or remove transit stops, or change pedestrian access to transit stops by adding median barriers or relocating of cross walks. The environmental document should discuss:

- Potential benefits and opportunities for greater integration of transit in the corridor.
- Potential construction impacts, particularly detours and temporary route closures.
- How changes in traffic patterns affect transit operations.
- Proposed mitigation for both construction impacts and operational impacts.

The environmental document should include a discussion of potential impacts of the transit improvement on the transportation system. Areas of concern include the effect on existing transit operations (area and frequency of service, travel time, and patronage), changes in traffic distribution, local circulation patterns, and parking. For more information on assessing environmental impacts for transit projects refer to the FTA Transportation Impacts web page.

460.05 Bicycling and Walking

The USDOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure requires that walking and bicycling be considered as equals with other modes of transportation, ensuring that transportation choices exist for people of all ages and abilities. In urban areas, bicycle and pedestrian ways must be established in new construction and reconstruction projects unless one or more of the following conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as costs exceeding 20 percent of the larger transportation project budget.
- Where low population levels.

FHWA Technical Advisory T 6640.8A (October 1987) requires that the environmental document discuss current and anticipated use of the bicycle and pedestrian facility, potential impacts, and measures to avoid or reduce adverse impacts. This requirement applies to formal trails and informal pathways with identified use by bicyclists and pedestrians. If the preferred alternative would sever an existing major route for nonmotorized transportation traffic, the proposed project needs to provide a reasonable alternative route or demonstrate that such a route exists (23 USC 109(m)).
Where new bicycle and pedestrian facilities are proposed as part of a highway project, the environmental document should:

• Include sufficient information to explain the basis for providing the facilities (e.g., proposed bicycle facility is a link in the local plan, or sidewalks will reduce project access impact to the community).
• Identify the facilities to be included in the preferred alternative.

1. **Safe Routes to Schools** – In 2011, the Washington Legislature funded a grant program for Safe Routes to Schools and Safe Routes to Transit. Proposed projects within one mile of a school may impact the Safe Routes to Schools and need to coordinate with the school. Schools are required to identify walking routes, provide a map, and describe identified hazards. Maps of routes are available on the WSDOT Safe Routes to Schools web page. Efforts to avoid, minimize, or mitigate adverse impacts and coordinate with school officials should be discussed in the environmental document.

2. **National Trails System Act** – The National Trails System Act 1968 (16 USC 1241-1251) requires federal agencies that abandon roadways, utility right of way, or other properties suitable for improving or expanding the national trails system to consider the possibility of using the abandoned right of way to extend the national trail system.

### 460.06 Parking

Parking issues may include elimination or changes to public or private parking adjacent to the highway right of way, and interim impacts such as construction parking, staging, and access. Local jurisdictions, especially those under GMA mandates, take the issue of parking seriously. Consult with local jurisdictions early during project development. The transportation chapter should identify potential impacts and mitigation. The discussion should include:

• Identification of the location and number of parking spaces that would be eliminated, added, or relocated. The discussion should address both permanent and temporary (construction) changes.
• Potential sites for relocation of parking. The number or parking spaces that would be provided in the new location and anticipated timing of the construction. The potential effect of relocating parking on local businesses and/or low income or minority populations should be discussed in Chapter 458.
• Potential relocation or reconfigurations of parking spaces or access to parking lots necessary to address safety concerns.

If a relocation or reconfiguration of parking is necessary to address safety concerns, the accident history and supporting traffic analysis should be included in the environmental document.

### 460.07 Waterborne Navigation

Road projects typically have little impact on waterborne navigation. However, river crossings may affect shipping routes or access to port facilities. Section 11 of FHWA Technical Advisory TA 6640.8A requires an analysis of potential impacts to waterborne navigation and a discussion of mitigation for adverse impacts. Any project that requires a Section 9 permit must also show evidence of coordination with the U.S. Coast Guard in accordance with the FHWA/U.S. Coast Guard MOA. Where the preferred alternative
requires a Section 9 permit, the NEPA documentation should include an exhibit showing
the horizontal and vertical navigational clearances for each permit activity.

Highway projects adjacent to ferry terminals may affect ferry loading and unloading
procedures, transit access, or parking. Coordination with WSF terminal operations staff
and a discussion of the affects (both beneficial and adverse) to ferry operations should
be included in the environmental document. Signal timing, turning movements, access
to parking, transit stops, pedestrian flow and bicycle trail connections may be important
factors.

The environmental document must evaluate the effect of proposed ferry operations on
the adjacent street system for vehicular traffic, pedestrian flow and bicycle access.

460.08 **Airports**

Any proposed highway construction or alteration in the vicinity of a public or military
airport will require early coordination with WSDOT’s Aviation Planning Division.
Potential issues include height hazards, smoke, glare, electronic signals, runway protection
zones, wildlife hazards and approved landscape/vegetation near the designated clear zones
and access. Local topography and the level of air traffic control provided may also require
evaluation of air port terminal procedures and single engine operative obstacle surfaces.
The WSDOT Aviation Division can assist with the obstruction evaluation and compliance
with FAA regulations.

Federal statutes require that reconstruction or relocation of any federally funded highway
located within a 3.8 mile radius of an airport facility must be coordinated with FAA
to ensure that airway highway clearances are adequate for the safe movement of air
and highway traffic (23 USC 318 and 23 CFR 620 Subpart A, Highway Improvements
in the Vicinity of Airports). See the WSDOT Environmental Permitting web page for FAA
public notice requirements.

Review of the WSDOT Aviation Stormwater Design Manual M 3041 is recommended
to evaluate potential impacts from the construction and operation of stormwater detention
facilities in close proximity to airports.

If FAA is the lead federal agency, the environmental document must evaluate the effect
of airport expansion or rehabilitation projects on the local transportation network,
including effect to parking, transit, vehicle congestion, travel time, and traffic patterns.

460.09 **Railroads**

When FHWA is the sole lead federal agency the Design Manual Chapter 1350 establishes
policies and procedures for coordinating highway and rail projects. It also includes
requirements for conducting a safety analyses for at-grade crossings and signalized
intersections in the vicinity of rail crossings.

If FRA is the federal lead, the EA/EIS must assess the direct, indirect, and cumulative
impacts on both passenger and freight transportation, by all modes, including the bicycles
and pedestrians. The analysis should address local, regional, national, and international
perspectives and include a discussion of construction and long-term impacts on vehicular
traffic congestion. For more information on assessing environmental impacts refer to FRA
Procedures for Considering Environmental Impacts. To determine if the project qualifies
as a CE see FRA’s Categorical Exclusion Worksheet guidance.
460.10 Transportation Discipline Report Guidance

The potential transportation impact for most projects can be adequately addressed in the main body of the environmental document. In the rare cases when warranted by the nature of the project, the analysis can be documented in a separate discipline report which supplements the environmental document. A separate transportation discipline report will only be needed for the most complex and environmentally controversial projects as shown in Table 460-1.

In all cases, the level of documentation should be “right sized” to reflect the complexity of the project, the scale of potential transportation impacts, and the level of controversy of the project. If modeling is used in the analysis, basic assumptions and a description of the methods used to calibrate and verify the model should be included in the project file, or the appendix of the environmental document.

A copy of the Transportation Discipline Report Checklist can be found on the WSDOT Discipline Report web page. Useful transportation data may be obtained from the WSDOT GIS Workbench, and the WSDOT Statewide Travel and Collision Data web page.

<table>
<thead>
<tr>
<th>Project Classification</th>
<th>Project Characteristics</th>
<th>Recommended Type of Environmental Documentation</th>
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<tbody>
<tr>
<td>• CE/DCE</td>
<td>• No controversy.</td>
<td>• ERS/ECS</td>
</tr>
<tr>
<td>• Safety Projects</td>
<td>• No construction closures.</td>
<td>• SEPA Checklist.*</td>
</tr>
<tr>
<td></td>
<td>• No operational transportation impacts and minor construction impacts.**</td>
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<tr>
<td></td>
<td>• Very limited number of alternatives.</td>
<td></td>
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<tr>
<td>• DCE</td>
<td>• Low to moderate level of controversy.</td>
<td>• SEPA Checklist.</td>
</tr>
<tr>
<td>• EA</td>
<td>• Impacts to transportation system/modes minor and can be mitigated.***</td>
<td>• Write to Environmental Document.</td>
</tr>
<tr>
<td>• EIS</td>
<td>• Moderate number of alternatives.</td>
<td>• Calculations, assumptions, and supporting documentation in appendix of environmental document or letter to file.</td>
</tr>
<tr>
<td></td>
<td>• Moderate amount of supporting documentation required.</td>
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</tr>
<tr>
<td>• EIS</td>
<td>• High level of controversy focused on mode choice or alternative selection.</td>
<td>• Write to Environmental Document. Include supporting documentation in appendix.</td>
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<td></td>
<td>• Adverse impacts to transportation system/modes cannot be mitigated.</td>
<td>• Consider writing a Transportation Discipline Report if supporting documentation is extensive and the explanation of assumptions and calculations very technical (e.g., numerous travel demand model runs).</td>
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<tr>
<td></td>
<td>• Wide variety of alternatives with significantly different travel patterns or travel sheds.</td>
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<td>• Large amount of supporting documentation required.</td>
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*See Department of Ecology’s SEPA Guide for Project Applicants: Guidance for Part B gives direction on how to fill out the SEPA checklist.

**See definition in Chapter 300.

***Includes both temporary constructions impacts and permanent operational impacts. Criteria for determining severity of construction impacts can be found in Design Manual Chapter 1010. Attach a copy of the Traffic Management Plan to the ECS form if the project has significant construction impacts to traffic.

Documentation Decision Matrix

Table 460-1
460.11 Transportation Related Statutes and Regulations

(1) Federal

- National Environmental Policy Act (NEPA) – PL 91 190, as amended. Federal implementing regulations are at 40 CFR 1500-1508 (CEQ) and 23 CFR 771 (FHWA). SAFETEA-LU (2005) amended the way FHWA implements NEPA. Changes are codified in 23 USC 139. 23 CFR 652 specifically requires that federally aided projects include an analysis of any impacts on bicycle and pedestrian traffic.
- USDOT Bicycle and Pedestrian Policy Statement – Based on the following CFR Title 23 Highways, Title 42 The Public Health and Welfare, Title 49 Transportation.
- Section 10 of the River and Harbors Act – (1899) 33 USC 403
- General Bridge Act – 33 USC Section 525 (formerly Section 9 of the Rivers and Harbors Act) and implementing regulations 33 CFR Parts 114-115
- National Trails System Act – (16 USC 1241-1251)
- FTA Regulations – 40 CFR 1500-1508

(2) State

- Aviation – RCW 14.12, RCW 36.70A.510, and RCW 36.70.547
- Bicycle/Pedestrian Traffic – RCW 47.30.020 and RCW 47.30.030
- City Streets as Part of State Highways – RCW 47.24
- Design Standards – WAC 468-18-040
- State Environmental Policy Act (SEPA) – WAC 197-11 and WAC 468-12 (WSDOT)
- Transportation Facilities and Services of Statewide Significance – RCW 47.06.140
- Vehicular Traffic – Essential Public Facilities – (GMA) RCW 36.70A
- WDNR Easements – RCW 47.12 grants WSDOT authority to obtain an easement from DNR highway, ferry, rail and other state transportation projects.

(3) Local

If a project provides, removes, or relocates parking, the local jurisdiction’s zoning, road standards, and off street parking regulations may apply. Links to appropriate city and county regulations can be found from the MRSC website.
460.12 Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
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<tr>
<td>FRA</td>
<td>Federal Rail Administration</td>
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<tr>
<td>GMA</td>
<td>Growth Management Act</td>
</tr>
<tr>
<td>HOV</td>
<td>High Occupant Vehicle</td>
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<tr>
<td>MRSC</td>
<td>Municipal Research and Services Center of Washington</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>SEPA</td>
<td>State Environmental Policy Act</td>
</tr>
<tr>
<td>SOV</td>
<td>Single Occupant Vehicle</td>
</tr>
<tr>
<td>TSM/TDM</td>
<td>Transportation System Management/Transportation Demand Management</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
</tbody>
</table>

460.13 Glossary

**Essential Public Facility** – Public facilities that are typically difficult to site, including airports, state or regional transportation facilities and services of statewide significances as defined in RCW 47.06.140.

**Transportation System Management/Transportation Demand Management (TSM/TDM)** – Actions that improve the operation and coordination of transportation services and facilities to make the most efficient use of the existing transportation system. Demand management strategies, such as ramp meters, are a type of TSM action.

**Transportation Facilities and Services of Statewide Significance** – Defined in RCW 47.06.140 to include the interstate highway system, interregional state principal arterials including ferry connections that serve statewide travel, intercity passenger rail services, intercity high-speed ground transportation, major passenger intermodal terminals excluding all airport facilitates and services, the freight railroad system, the Columbia/Snake navigable rifer system, marine port facilities, and services that are related solely to marine activities affecting international and interstate trade, and high capacity transportation systems serving regions as defined in RCW 81.104.015.