

**Southwest Washington Regional
Transportation Council**

**Clark County Freight
Mobility Study**

**Technical Memorandum 3.C.1
Summary of Existing Design Guidelines
Relating to Truck Mobility**

**Prepared By:
Heffron Transportation, Inc.**

**Prepared For:
RTC**

October 28, 2009

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Prepared by:

Heffron Transportation, Inc.

6544 NE 61st Street

Seattle, Washington 98115

Prepared for:

SW Regional Transportation Council

1300 Franklin Street, Floor 4

Vancouver, Washington 98660

October 28, 2009

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1. Overview

The purpose of this technical memorandum is to understand what existing policies and roadway design guidelines are in place that address truck mobility and the movement of freight in Clark County. In general, each jurisdiction establishes its underlying freight mobility policies in the comprehensive plan and/or companion transportation element. Each jurisdiction has an adopted functional classification system that provides the basis for their design criteria and/or standards. Most jurisdictions identify truck routes by functional classification.

This technical memorandum provides a summary of existing freight-related design policies, functional classifications, truck routes, and design guidelines relevant to truck mobility. Clark County is summarized first, followed by the City of Vancouver as the largest city, and then by other cities in Clark County in alphabetical order. Finally, information about WSDOT's freight classification system is provided.

2. Clark County

2.1 *Transportation Policy*

Clark County's Comprehensive Plan (Clark County, 2009) directs that the County will establish major inter-modal transportation corridors that preserve mobility for interstate commerce and freight movement and preserve and improve linkages between the Port of Vancouver and other regional transportation systems.

2.2 *Functional Classification System*

Clark County identifies the functional classification system in the County's "Arterial Atlas." The assigned functional classification specifies the design of roadways in general terms. Clark County identifies both urban and rural classifications of roadways due to the diverse roadway types necessary throughout this large county. Clark County's roadway classifications are listed below:

- Parkway Arterial
- Principle Arterial
- Minor Arterial
- Urban Collector
- Local Access
- Neighborhood Circulator
- Primary Industrial
- Secondary Industrial
- Local Industrial
- Rural Arterial
- Rural Major Collector
- Rural Minor Collector
- Scenic Highway

The Transportation Element of the Comprehensive Plan designates as truck routes all roadways classified as arterials or above and located within the urban areas. In rural areas, the County designates all collector facilities and above as truck routes. The plan also recognizes all Washington State Department of Transportation (WSDOT) state highways as truck routes.

2.3 Design Criteria and Guidelines

Design criteria for Clark County roadways are in Section 40.350.030 of the Unified Development Code (Clark County, 2009). The responsible official may require higher standards for unusual site conditions. The design criteria relevant to truck mobility are presented by functional classification and include: number of lanes, lane width, median width, roadway width, design speed, maximum grade, sidewalk width, and minimum radii.

The minimum radius for the classifications of urban arterials and the urban collector street is 35 feet. The minimum radius for the rural arterial and rural collectors is also 35 feet. Table 40.350.030-6 presents design criteria for Urban Industrial Roads. The minimum radii are 50 feet for primary industrial, and 45 feet for secondary industrial and local industrial.

3. City of Vancouver

3.1 Transportation Policy

The Transportation Plan (City of Vancouver, 2004) identifies that freight movement is a key functioning component of our highway system and that the important highway issues that need to be addressed are freight mobility hot-spots to ensure viable Port activities and goods movement.

State Route (SR) 501/Mill Plain Boulevard and West Fourth Plain Boulevard are recognized as two primary access ways to the Port and West Vancouver. Mill Plain Boulevard is also critical to downtown vibrancy while Fourth Plain Boulevard also serves several close-in neighborhoods. The plan calls for a balance between providing travel efficiency for downtown, west industrial, and Port interests, while ensuring safety, livability, and complete multi-modal city streets.

3.2 Functional Classification

The City of Vancouver applies the functional classification system to guide design planning and design decisions for streets. There are four classifications listed below: State Highways

- Principle Arterial
- Minor Arterial
- Collector Arterial

Truck Routes are identified within the Vancouver City Center Vision & Subarea Plan, Downtown Vancouver Traffic Analysis (Vancouver 2006). Both existing and future truck routes are documented. There are two existing east-west truck routes: Mill Plain Boulevard, including the Mill Plain Boulevard/15th Street couplet, and Evergreen Boulevard. There are three north-south truck routes: Jefferson Street and the Washington Street/C Street one-way couplet.

3.3 Design Criteria and Guidelines

Design criteria for Vancouver streets are in Section 11.80.025 of the Vancouver Municipal Code (City of Vancouver, 2009). The Director of Public Works may require higher standards for unusual site conditions. The design criteria relevant to truck mobility are presented by functional classification and include: number of lanes, lane width, median width, roadway width, design

speed, maximum grade, sidewalk width and minimum radii. The minimum radius for the classifications of arterial and collector streets is 35 feet.

In addition, Section 11.80.025 of the Vancouver Municipal Code (VMC) includes design criteria for industrial streets. Industrial street types for design are listed below.

- Principle Industry
- Secondary Industry
- Local Industry

On industrial streets, the criteria include wider lanes for through and turn lanes, minimum and maximum grade, and minimum intersection radii. The minimum intersection radii are 50 feet for Principle Industry and 45 feet for Secondary and Local Industry.

The design criteria in 11.80.025 VMC are implemented through the City's Standard Plans (City of Vancouver, 2008). The Standard Plans provided specific information on various roadway designations and construction standards.

The City's functional classification system is used to designate the primary function (arterial, collector, local, etc.) and to guide specific design standards (industrial, local, arterial, etc.) which are not typically set until site plan review or roadway design commences. This provides flexibility to require specific geometric design standards at the time of permitting in order to ensure that the street is designed and supportive of the adjacent uses. In addition, the city's general design policy is to employ the "complete streets" concept (Transportation Planning Manager, 2009). The complete streets concept is a relatively new approach to transportation design used to balance the needs of multiple users on a given roadway.

4. City of Battle Ground

4.1 Transportation Policy

A key component of the transportation system is the provision of adequate mobility for the movement of freight, as stated in the Comprehensive Plan (City of Battle Ground, 2004).

4.2 Functional Classification

A system of truck routes has been designated to minimize the adverse impacts of truck traffic on local streets. The system includes state highways, all Clark County truck routes, and select streets shown in the Transportation Element. A new "industrial road" identified in the Transportation Element has been recently constructed between SE Rasmussen Boulevard and SE Boulevard (NE 199th Street). This new road is called SE Commerce Street. This recently constructed road was identified as a recommended truck route in the Transportation Plan (City of Battle Ground, 2004).

4.3 Design Standards and Guidelines

Street standards are designated by the arterial and collector streets shown in the Comprehensive Plan (City of Battle Ground, 2004). The minor arterial street is the standard street section for commercial and industrial developments, except where the transportation plan requires a major arterial.

The city engineer has the authority to specify which of the standard specifications will apply to each construction project. Documents referenced that include street standards are the WSDOT Design Manual (WSDOT, 2009) and the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets (AASHTO, 2004).

5. City of Camas

5.1 Transportation Policy

The Transportation Element of the Comprehensive Plan (City of Camas, 2004) provides policy on street design. The policy directs that streets are designed to serve their anticipated function and intended uses as determined by the Comprehensive Plan, and that street standards are to support the multi-use nature of streets, including truck use.

5.2 Functional Classification

The functional classifications of streets in Camas are presented in the Transportation Comprehensive Plan map. The functional classifications are listed below.

- 4-Lane Arterial
- 2-Lane Arterial
- 2-Lane Collector

5.3 Design Standards and/or Guidelines

Minimum Street Standards are presented in the Camas Municipal Code (CMC 17.19.040). For commercial/industrial streets the tract width is 40 feet and the pavement width is 24 feet. The minimum intersection radius is 35 feet on arterial and collector streets and 25 feet on all other streets. Larger radii may be required at the direction of the City Engineer.

6. City of La Center

6.1 Transportation Policy

The City of La Center does not have any industrial land within the city limits, and so the city has not identified developed policies related to truck mobility, nor identified truck routes. There is some industrial land within the city's Urban Growth Area near I-5.

6.2 Functional Classification

The functional classification of existing and proposed roads is established by the City on an individual basis using the existing land use and existing operational characteristics (City of La Center, 2009). The city classifies streets as listed below.

- Major Collector
- Minor Collector
- Small City Arterial
- Local Access Street

6.3 Design Standards and Guidelines

Design standards that relate to truck mobility primarily include lane width and turning radii. The minimum intersection radius is 40 feet for all arterial classifications (City of La Center, 2009).

7. City of Ridgefield

7.1 Transportation Policy

The Comprehensive Plan (City of Ridgefield, 2008) for the City of Ridgefield includes a transportation policy related to economic development. It directs major transportation investments to facilitate freight mobility, job creation, regional competitive position, and revenue growth.

7.2 Functional Classification

The functional classification in Ridgefield includes arterials and collectors with a special sub-category called the Commercial/Industrial Collector. The Transportation Element of the Comprehensive Plan (City of Ridgefield, 2008) presents existing and proposed functional classifications. The functional classifications are listed below.

- State Highways and Principle Arterial
- Minor Arterial
- Collector
- Industrial/Commercial Collector
- Scenic Collector

The truck route through Ridgefield runs west on SR 510 from I-5, then north of N 3rd Street, then west of NW Division Street, leading to an industrial area (Steve Wall, Public Works Director).

7.3 Design Standards and Guidelines

Design standards for Street Cross Sections are included in the Engineering Standards for Public Works Construction (City of Ridgefield, 2008). Design standards that relate to truck mobility include lane widths, turning radii, and intersection sight distance. Standard detail sections include the Industrial/Commercial Collector and the Industrial Local Section. The Industrial Local street standards are 14-foot travel lanes and a 14-foot center turn lane.

The turning radii are based on the intersection of functional classifications. The turning radius of a major/minor arterial street intersecting with a major/minor arterial street is 55 feet. A major/minor arterial intersecting with a commercial/industrial street and a commercial industrial street intersecting with a commercial industrial street would require a radius of 40 feet.

8. City of Washougal

8.1 *Transportation Policy*

The Comprehensive Plan (City of Washougal, 2003) includes industrial development policies and transportation development policies. These policies speak to the transportation system but not directly to design.

8.2 *Functional Classification*

The functional classification of existing and proposed roadways is established by the City on an individual basis using the existing land use and existing operational characteristics (City of Washougal, 2003). The functional classifications are listed below.

- Principle Arterial
- Minor Arterial
- Urban Collector
- Industrial Collector
- Residential Collector
- Rural Collector

The City of Washougal has one truck route adopted by ordinance. (City of Washougal, 1983) The truck route is described as: Fifteenth Street from Highway 14 north to “E” Street; then east on “E” Street to 32nd; then south on 32nd to the Industrial Park. The Industrial Collector streets are shown on the City of Washougal Roads Classification Map. (City of Washougal, 2003)

8.3 *Design Standards and Guidelines*

Design standards are included in the Engineering Standards for Public Works (City of Washougal, 2007). Design standards affecting truck mobility include lane width, site distance, and curb radii. The curb radii are based on the functional classifications of intersecting streets. The curb radius for a Principle/Minor Arterial intersecting a Major/Minor Arterial Street and intersecting an Industrial/Commercial Collector Street is 55 feet. The curb radius of an Industrial/Commercial Collector Street intersecting a Major/Minor Arterial Street and intersecting a Commercial/Industrial Collector Street is 40 feet.

9. Washington State Department of Transportation

The Washington State Department of Transportation (WSDOT) Freight and Goods Transportation System (FGTS) is used to classify state highways, county roads, and city streets according to the average annual gross truck tonnage (WSDOT, 2008). The WSDOT, with the assistance of the Association of Washington Cities (AWC) and the County Road Administration Board (CRAB), updates the FGTS classifications on a periodic basis as required by the Washington State Legislature. The CRAB provides FGTS classification information for county roads in their annual County Freight and Good System (CFGGS). These are obtained from each of Washington’s 39 counties. Some counties work with trucking concerns to develop tonnage data. The FGTS classification of city streets is provided to WSDOT by local jurisdictions.

The FGTS provides an estimate of the highways and roadways most heavily used by trucks. It is used to establish funding eligibility for Freight Mobility Strategic Investment Board (FMSIB) grants. The FGTS classifies roadways using five freight tonnage classifications, T-1 through T-5, as follows:

- T-1 More than 10 million tons per year
- T-2 4 million to 10 million tons per year
- T-3 300,000 to 4 million tons per year
- T-4 100,000 to 300,000 tons per year
- T-5 at least 20,000 tons in 60 days

Tonnage values are derived from actual or estimated vehicle classification data that are converted into average weights by truck type. In calculating the approximate freight tonnage for the FGTS, the following average weights are used:

- Singles (Medium/Class 6, 7) 7 tons
- Doubles (Heavy,/1 trailer, class 8, 9, 10) 27 tons
- Trains (Heavy, 2 trailers, class 11, 12, 13) 42 tons

The resulting FGTS designations are reported in the appendices of the Washington State Freight and Good Transportation System (FGTS) 2007 Update (WSDOT, 2008). The FGTS classification system is dependent on the truck vehicle classification data that the regional council, county, and cities provide to WSDOT.

10. Conclusions

While the jurisdictions in Clark County do try to address trucks in their policies and standards, most of the routes and design guidelines are not focused on truck mobility. This information will be used as a starting point for developing more specific routing and guidelines, as described below.

10.1 Truck Freight Routes

The functional classification systems of Clark County and the cities in Clark County are well established; however, truck routes are generally described by qualitative statements in each jurisdiction's transportation element that equate a functional classification to a truck route. Attachment 1 shows that this approach results in all of Clark County's arterials, plus collectors in the rural areas, as truck routes. The cities have fewer truck route designations. Attachment 1 shows the current designations in a mapped format. As illustrated in Attachment 1, Clark County does not yet have a county-wide system of truck routes.

The findings in this technical memorandum will be used to develop a system of truck freight routes in Clark County that support existing and future land use that generates truck trips. The Regional Transportation Council will include these truck freight routes in their regional planning process. In addition, accurate truck vehicle classification data should result in a WSDOT FGTS designation consistent with truck freight planning by the RTC, including the Clark County Freight Study. A well-prioritized system of truck routes can clearly show decision-makers, the

public, and potential funding sources the importance of a roadway to freight mobility and the economy.

10.2 Design Guidelines for Truck Mobility

Many arterials in Clark County serve important freight mobility needs and at the same time carry all modes of transportation – commuters in passenger vehicles, small commercial vehicles, buses, bicycles, and pedestrians. The design guidelines of jurisdictions in Clark County are flexible and provide for the basic needs of truck mobility; however, the design guidelines do not address the design of facilities with multiple modes of transportation. This situation provides little to no assurance for any user that a roadway facility will meet their mobility needs. Task 3D of this study is intended to develop design guidelines for truck mobility and a “complete streets” approach to designing roadways for all users.

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