Transportation Usage of the Washington Wine Industry

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The Strategic Freight Transportation Analysis (SFTA) is a six year, $1.8 million comprehensive research and implementation analysis that will provide information (data and direction) for local, state and national investments and decisions designed to achieve the goal of seamless transportation.

The overall SFTA scope includes the following goals and objectives:

- Improving knowledge about freight corridors.
- Assessing the operations of roadways, rail systems, ports and barges – freight choke points.
- Analyze modal cost structures and competitive mode shares.
- Assess potential economic development opportunities.
- Conduct case studies of public/private transportation costs.
- Evaluate the opportunity for public/private partnerships.

The five specific work tasks identified for SFTA are:

- Work Task 1 - Scoping of Full Project
- Work Task 2 - Statewide Origin and Destination Truck Survey
- Work Task 3 - Shortline Railroad Economic Analysis
- Work Task 4 - Strategic Resources Access Road Network (Critical State and Local Integrated Network)
- Work Task 5 - Adaptive Research Management

For additional information about this report or SFTA, please visit [http://sfta.wsu.edu](http://sfta.wsu.edu) or contact Eric Jessup or Ken Casavant at the following address:

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PREVIOUS SFTA REPORTS NOW AVAILABLE


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TABLE OF CONTENTS

LIST OF FIGURES .............................................................................................................v
LIST OF TABLES .............................................................................................................v
INTRODUCTION ..............................................................................................................1
WASHINGTON’S WINE INDUSTRY ............................................................................1
TRANSPORTATION OF WINE PRODUCT ......................................................................6
SFTA TRUCK ORIGIN AND DESTINATION SURVEY ..............................................11
   Wine Grape Movements .......................................................................................11
   Bulk Wine Movements .......................................................................................11
   Finished Wine Movements ...............................................................................11
SUMMARY ......................................................................................................................12
REFERENCES .................................................................................................................13
APPENDIX ....................................................................................................................14
LIST OF FIGURES

1.1. Growth in Washington Wineries ................................................................. 2
1.2. Location of American Viticultural Areas .................................................. 2
1.3. Sub-Appellations Contained in the Columbia Valley AVA ...................... 3
1.4. Winery Locations ...................................................................................... 4
1.5. Annual Casegoods Production ................................................................. 5
1.6. Storage Capacity ..................................................................................... 5
1.7. Wine Grape Movements ........................................................................... 8
1.8. Bulk Wine Movements ............................................................................ 9
1.9. Finished Wine Movements ..................................................................... 10

LIST OF TABLES

A.1. AVA Characteristics .............................................................................. 15
A.2. Sub-Appellation Characteristics ............................................................. 16
A.3 Washington Winery Characteristics ......................................................... 17
Transportation Usage Of The Washington Wine Industry

INTRODUCTION

The Washington wine industry has grown significantly in the past 20 years. From 1981 to the present, the number of wineries has grown from 19 to just over 200 (“Wine Facts”). Similarly, the wine grape acreage in Washington has grown tenfold. With the increase in production there has been an increase in transportation requirements. County Public Works Departments, RTPOs, MPOs and the Washington State Department of Transportation are challenged with the task of understanding and supporting the efficient transportation of wine products within their respective jurisdictions. A central objective of the Strategic Freight Transportation Analysis (SFTA) study is to develop research-based information to help state and local transportation authorities effectively meet this challenge.

This research report begins with a brief overview of the current level and geographic location of grape production and processing activities.

Information for this report was acquired using research reports prepared for the Washington Wine Commission and the Washington Association of Wine Grape Growers and Wines and Vine’s Buyers Guide 2002. Additional data were secured through telephone interviews with industry contacts.

WASHINGTON'S WINE INDUSTRY

Washington's wine industry has prospered in the last two decades, placing it second only to California in total production (“Wine Industry”). The wines produced within the state are generally placed in the premium segment with a value of over eight dollars per bottle (Motto). Due to favorable growing conditions and abundant daylight hours Washington grape growers have not only been able to amply supply Washington wineries, but wineries in Canada and throughout the states. In total the Washington wine production and processing segments and affiliated endeavors account for an estimated 2.4 billion dollars to Washington's economy (Motto). Figure 1.1 shows how the number of wineries in Washington has grown in the last 2 decades.

Washington wine grapes are grown predominantly in five American Viticultural Areas (AVAs). AVAs are recognized and defined by the Bureau of Alcohol, Tobacco and Firearms for having unique climates, soils and physical features which distinguish them from surrounding areas. Washington's AVAs are Puget Sound, Yakima Valley, Columbia Valley, Red Mountain and Walla Walla Valley. The Yakima Valley and Columbia Valley AVAs are the most productive, accounting for 94% of the state's total acreage. The large Columbia Valley AVA is further divided into several sub-appellations including Alder Ridge, Canoe Ridge, Cold Creek, Royal Slope, Mattawa, Wallula and Wahluke Slope. The combined bearing acreage of all wine grapes in the state is just under 25,000 acres according to a 2001 survey done by the Washington Agricultural Statistics Service (“Acreage Survey”).
Figure 1.1. Growth in WA Wineries

Source: Washington Wine Commission Homepage

Figure 1.2. Location of American Viticultural Areas

Source: Washington Wine Commission Homepage
Washington offers a large selection of wine grapes varieties and is constantly evolving to meet changing consumer demands. White wine varieties account for nearly 11,000 of the state's bearing acreage with Chardonnay accounting for over half (“Acreage Survey’’). Other white wines of importance include White Riesling, Sauvignon Blanc, and Gewuztraminer.

Red wine varieties account for nearly 14,000 of the state's 24,800 bearing acreage (“Acreage Survey’’). The two most dominant varieties are Merlot and Cabernet Sauvignon, with each responsible for over 5,000 acres. Other red varieties of significance are Syrah and Cabernet Franc. For a complete breakdown of which grapes are grown where and the levels of production refer to Tables A.1 and A.2.

Washington wineries are concentrated in to a few identifiable blocks. Those areas of highest production directly correlate to the amount of grapes within the area. The Yakima Valley, the Tri-Cities area and Walla Walla area are responsible for a large majority of the state's production. The Greater Puget Sound area does encompass several wineries, but most are smaller wineries due to the shortage of grapes within the immediate vicinity and the costs associated with moving the raw product. Other than the areas previously mentioned, most wineries are somewhat scattered with slight concentration in the Spokane area and near the Woodinville area. The locations of Washington's wineries are shown in Figure 1.4.
When examining the wineries, we see a large amount of concentration with the five largest wineries accounting for 76% of the production. It should also be noted that 4 of the top 7 producing wineries in this state are all owned by the parent company of Stimson-Lane, a subsidiary of United States Tobacco. Figures 1.5 and 1.6 depict winery casegood production and storage. It should be noted that in both maps some wineries that fall into the lowest range are the result of incomplete/unavailable data. Table A.3 gives a fairly complete breakdown of the state's wineries' production capabilities.
Figure 1.5. Annual Casegood Production

Figure 1.6. Storage Capacity

Sources: Wines and Vine’s Buyer’s Guide 2002 and Washington Wine Commission Homepage
TRANSPORTATION OF WINE PRODUCTS

When examining the transportation of wine or wine productions there are three separate, identifiable segments that should be examined. These are raw product (grapes) to processor or winery, bulk wine or juice between processors and finished product to markets. It is often times beneficial for wineries to have a separate facility custom press grapes for them. This could be due to the high costs of owning and operating a press or the simple fact that it is more economical to have juice delivered in bulk rather than grapes that take up much more space. Chateau Ste. Michelle, the second largest winery in Washington, is based in Woodinville and has their entire raw product delivered in juice form once it is custom pressed at one of few places. Coventry Vale has two wineries located in Grandview and Mattawa that strictly produce bulk wine to be sold to other wineries. They are responsible for somewhere near 1,000,000 gallons that are currently being processed at Chateau Ste. Michelle. These types of arrangements are proving to be very beneficial to both parties. It allows one company to get the maximum use out of their machinery investments while the other saves significant shipping costs.

Wine grape harvest takes place generally between late August and early November. These dates can be slightly disrupted based on weather during the growing season and grape variety. Consequently this time of year is when wine industry related traffic peaks. During this period trucks carry several tons of grapes to be processed.

A majority of bulk juice should fall into that same time frame, but it is not uncommon for bulk unfinished wine to be shipped throughout the year. These shipments can be between two wineries belonging to the same company for blending purposes, from non bottling processing facilities to wineries needing more product, or from winery to winery to where there is a product shortage or demand for a different variety. It is common for Washington wine to be shipped out of state and even country in bulk for blending purposes due to it's reputation of quality. Bulk wine is also brought into this state, but to a lesser extent.

The final piece of the puzzle is the delivery of finished product. The flow remains somewhat continuous throughout the year sans the holiday season. During the months of November through January there is a sharp spike in consumption. For some varieties the summer months also see a significant increase in consumption.

Using the ArcGIS program the state's wineries have been entered to the nearest major county road, highway or freeway as well as the major grape producing areas. Through this process we are able to determine which routes are most critical in the maintenance of the state's wine industry.

With a quick examination it is quite obvious that I-82 is the most critical route for the wine industry. Not only is it surrounded by the largest number of wineries, it runs through the heart of the largest wine producing regions. Both I-5 and I-90 are also critical in the wine industry. Shipments of grapes and juice west to wineries rely on these routes and consequently these routes prove to be the major corridors to large markets for finished wine products.
SR-221 and SR-14 also generate significant truck traffic because of the two major Stimson-Lane wineries (Columbia Crest and Canoe Ridge Estates) located in close proximity. Also in Benton County, SR-224 generates a modest amount of truck traffic due to the concentration of medium to large sized wineries on arterial streets. These include Terra Blanca, Seth Ryan, Oakwood Cellars, Sandhill Winery, Hedges Cellars, Tapteil Vineyard Winery, and Kiona Vineyards.

Another area of concentration falls around the Woodinville area. Two large wineries (Chateau Ste. Michelle and Columbia Winery) and several others fall near SR-202. The number of wineries in close proximity also impacts I-405 and SR-522. Another route that with significant wine related movement in SR-12 near Walla Walla, with over 25 wineries located on arterial routes. The last routes of major significance are I-182 and SR-395 in the Tri-Cities area. Gordon Brothers, Preston Premium Wines, Claar Cellars, Barnard Griffin, Tagaris Winery and Balcom and Moe Winery all fall in this area. Figures 1.7-1.9 examine which routes are most important in the movement of wine grapes, bulk wine and finished wine.
Figure 1.7. Wine Grape Movements

I-82 is the lifeline of the Washington wine industry. It goes directly through the Yakima and Columbia Valley AVAs and many wineries fall near/on it.

SR 221 and SR 14 lay in areas of significant grape production. Columbia Crest and Canoe Ridge Estates Winery lie on these routes.

I-90 is essential in the movement of grapes across the state to supply the Puget Sound Wineries with necessary grapes.

SR 24, SR 243, SR 26, SR 241 and SR 240 lay in areas of heavy grape production. Royal Slope, Mattawa, Wahluke Slope and Cold Creek all fall on these routes.

SR 124 and US 12 are used in the movement of wine grapes in to the Walla Walla wineries and from the Walla Walla Valley AVA.

I-5 is utilized in the movement of grapes to Canadian facilities.

I-5 is a common corridor for grapes entering the state from California.

I-82/US 395 is an entry point for several grape shipments from California.
Figure 1.8. Bulk Wine Movements

SR 522 is crucial to supplying large Woodinville wineries with their bulk wine needs. Chateau St. Michelle, Columbia Winery and many other wineries lay near the route.

SR 243 is of particular importance because of the large amount of bulk wine produced by Coventry Vale in Mattawa. They supplied a million gallons to Chateau St. Michelle (Woodinville) alone during 2002.

I 90 is the gateway to western Washington wineries.

SR 221 moves Columbia Crest and Canoe Ridge Estates bulk wine to their sister winery in Woodinville (Chateau St. Michelle).

I 82 provides a secondary point of entry to Washington for California wines. I 82 also lays near several large wineries that participate in bulk wine trade.

I 5 is the predominant point of entry for California bulk wines. These wines supply many Puget Sound region wineries as well as wineries north to British Columbia.
Figure 1.9. Finished Wine Movements

I-90 is responsible for the intrastate distribution of wine products and provides a corridor to the marine ports or exit to eastern markets.

I-82 is the lifeline of Washington Wine with many large wineries laying on/near it. It also provides a significant point of entry/exit on the Oregon border.

I-5 provides a route through major Washington cities and provides a link from California to the Vancouver, British Columbia region.

Columbia Crest, the state's largest winery with 1.6 million cases produced annually, lays on SR 221.

US 12 lays near several medium sized wineries in the Walla Walla region.
SFTA TRUCK ORIGIN AND DESTINATION SURVEY

The recently completed Origin and Destination Truck Survey provides information on truck movements, characteristics, average truck configurations, axle counts, weights, as well as origin and destination points. Please note that the complete wine data set was less that 40 surveys.

Wine Grape Movements:

The instate movement of grapes typically utilize the tractor and trailer configuration with a van type trailer. Both vans with or without temperature controls were surveyed. Axle counts for grape movements most often displayed three axles on the tractor and two axles on the trailer. The average payload weight is 30,123 pounds.

In the small sample size upon which this information is based, over half of the grapes had Washington origins with most of the remaining shipments coming from California. Nearly all grape shipments were heading westward with many bound for British Columbia destinations. The most common routes were I-90, I-5, SR543 and I-82.

Bulk Wine Movements:

Only shipments in tankers are seen in this group. These tankers have an average empty weight of 31,000 pounds and an average payload weight of 37,200 pounds. A payload range between 30,000 and 50,200 was seen.

In the small survey size, all but one bulk wine shipment had a California origin. Most of the shipments had destinations in British Columbia. The most commonly used routes were I-5 and SR522.

Finished Wine Products:

Shipments carrying finished wine products most commonly utilized van type trailers. Vans both with and without temperature control were accounted for. The average empty weight was 34,161 pounds with an average payload weight of 41,469 pounds. In a sample size of 25 shipments, 17 shipments had Washington origins. Nine of the shipments had Washington destinations with most of the remaining shipments traveling to British Columbia, California and Idaho.
SUMMARY

The wine industry in Washington has grown significantly, in all aspects, in the past several years. The number of wineries has increased from fewer than 20 to over 200. Likewise, the wine grape acreage has climbed from 2,000 to over 24,000. With the high level of growth in the wine industry added stress has been placed upon the transportation system to accommodate increased truck traffic.

Providing further stress to the transportation issue is the concentration of wineries in selected areas. The Columbia Valley, Yakima Valley and Walla Walla Valley are not only the hub of the state’s wine grape production, but also the predominant areas of wine production. This leads several key routes to handle the complete burden of the state’s wine industry. To further complicate the matter, issues of seasonality cause roads to see the most truck traffic during the three to four month grape harvest. All of these issues need to be taken in to consideration when making transportation decisions.

Movements affiliated with the wine industry can be broken down into three distinct categories; grapes to processing facilities, bulk wine and juice between processing facilities and finished product from wineries. While each category presents unique traffic flows, heavy overlap of routes does exist.

Continued growth in the wine industry will not completely reshape the transportation requirements, but rather cause additional traffic over existing routes. Although past expansion has opened up new areas to the wine industry, it is more likely that future growth presents concentration over expansion. Areas already producing wine will see new wineries being built and expansion of existing wineries over time.
REFERENCES


APPENDIX
Table A.1. AVA Characteristics

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Source: 2002 Washington Wine Grape Acreage Survey
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* Data for Canoe Ridge, Cold Creek and Wallula are combined to avoid disclosing information about individual operations.

Source: 2002 Washington Wine Grape Acreage Survey
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<tr>
<th>Winery (Bonded)</th>
<th>Production Capabilities (Cases/Year)</th>
<th>Storage Capacity (Gallons)</th>
<th>Vineyard Acreage Controlled</th>
<th>Top Varietals</th>
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### Table A.3. Continued

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<th>Winery (Bonded)</th>
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<th>Storage Capacity (Gallons)</th>
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<td>Storage Capacity (Gallons)</td>
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<td>Top Varietals</td>
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<td>2,000</td>
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<td>40</td>
<td>Cabernet Sauvignon, Merlot</td>
</tr>
<tr>
<td>Seth Ryan Winery</td>
<td>2,000</td>
<td>8,500</td>
<td>64</td>
<td>Cabernet Sauvignon, Merlot, Gewurztraminer</td>
</tr>
<tr>
<td>Seven Hills Winery, LLC</td>
<td>7,500</td>
<td>24,000</td>
<td>N/A</td>
<td>Cabernet Sauvignon, Merlot, Syrah</td>
</tr>
<tr>
<td>Silver Lake Winery</td>
<td>75,000</td>
<td>250,000 combined</td>
<td>275 combined</td>
<td>Chardonnay, Cabernet Sauvignon, Merlot</td>
</tr>
<tr>
<td>Silver Lake Winery at Roza Hills</td>
<td>N/A</td>
<td>250,000 combined</td>
<td>275 combined</td>
<td>Chardonnay, Cabernet Sauvignon, Merlot</td>
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<tr>
<td>Snoqualmie Vineyards</td>
<td>87,012</td>
<td>N/A</td>
<td>N/A</td>
<td>Cabernet Sauvignon, Merlot, Chardonnay</td>
</tr>
<tr>
<td>Soos Creek Wine Cellars</td>
<td>800</td>
<td>4,000</td>
<td>N/A</td>
<td>Cabernet Sauvignon</td>
</tr>
<tr>
<td>Sorensen Cellars, LTD</td>
<td>500</td>
<td>N/A</td>
<td>N/A</td>
<td>Cabernet Sauvignon, Merlot, Cabernet Franc</td>
</tr>
<tr>
<td>Sunnyside Operations</td>
<td>360,000</td>
<td>1,700,000</td>
<td>2510</td>
<td>Chardonnay, Cabernet Sauvignon, Merlot</td>
</tr>
<tr>
<td>Tagaris Winery</td>
<td>4,000</td>
<td>N/A</td>
<td>140</td>
<td>Chardonnay, Cabernet Sauvignon, Merlot</td>
</tr>
<tr>
<td>Tamarack Cellars</td>
<td>5,000</td>
<td>N/A</td>
<td>N/A</td>
<td>Merlot, Cabernet Sauvignon, Syrah</td>
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<tr>
<td>Tefft Cellars</td>
<td>7,000</td>
<td>30,000</td>
<td>12</td>
<td>Cabernet Sauvignon, Merlot, Sangiovese</td>
</tr>
<tr>
<td>Terra Blanca</td>
<td>18,000</td>
<td>280,000</td>
<td>760</td>
<td>Merlot, Cabernet Sauvignon, Syrah</td>
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<tr>
<td>Three Rivers Winery</td>
<td>15,000</td>
<td>27,443</td>
<td>25</td>
<td>Merlot, Cabernet Sauvignon, Chardonnay</td>
</tr>
<tr>
<td>Thurston Wolfe Wines</td>
<td>1,000</td>
<td>3,000</td>
<td>N/A</td>
<td>Lemberger, Sangiovese, Syrah</td>
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<tr>
<td>Trey Marie Winery</td>
<td>7,000</td>
<td>20,000</td>
<td>132</td>
<td>Merlot, Cabernet Sauvignon, Cabernet Franc</td>
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<tr>
<td>Tucker Cellars Winery</td>
<td>6,000</td>
<td>45,000</td>
<td>80</td>
<td>Pinot Noir, Gewurztraminer, Muscat Canelli</td>
</tr>
<tr>
<td>Winery (Bonded)</td>
<td>Production Capabilities (Cases/Year)</td>
<td>Storage Capacity (Gallons)</td>
<td>Vineyard Acreage Controlled</td>
<td>Top Varietals</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------------------------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>---------------------------------------------------</td>
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<tr>
<td>Vashon Winery</td>
<td>750</td>
<td>N/A</td>
<td>N/A</td>
<td>Cabernet Sauvignon, Merlot, Semillon</td>
</tr>
<tr>
<td>Walla Walla Vintner</td>
<td>1,800</td>
<td>N/A</td>
<td>N/A</td>
<td>Merlot, Cabernet Sauvignon, Cabernet Franc</td>
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<tr>
<td>Washington Hills Cellars</td>
<td>70,000</td>
<td>450,000</td>
<td>N/A</td>
<td>Chardonnay, Cabernet Sauvignon, Merlot</td>
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<tr>
<td>Waterbrook Winery</td>
<td>30,000</td>
<td>135,000</td>
<td>N/A</td>
<td>Chardonnay, Merlot, Cabernet Sauvignon</td>
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<tr>
<td>Whidbey Island Winery and Vineyard</td>
<td>2,700</td>
<td>10,000</td>
<td>7</td>
<td>Pinot Gris, Lemberger, Merlot</td>
</tr>
<tr>
<td>White Heron Cellars</td>
<td>1,500</td>
<td>5,000</td>
<td>25</td>
<td>Cabernet Franc, Syrah, Rousanne</td>
</tr>
<tr>
<td>Widgeon Hill Winery</td>
<td>500</td>
<td>N/A</td>
<td>N/A</td>
<td>Merlot, Cabernet Sauvignon, Chenin Blanc</td>
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<tr>
<td>Willow Crest Winery/ Snipes Gap Vineyards Inc.</td>
<td>1,100</td>
<td>3,600</td>
<td>135</td>
<td>Pinot Gris, Merlot, Cabernet Sauvignon</td>
</tr>
<tr>
<td>Wilridge Winery</td>
<td>2,000</td>
<td>2,000</td>
<td>N/A</td>
<td>Merlot, Cabernet Sauvignon</td>
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<tr>
<td>Wineglass Cellars</td>
<td>3,500</td>
<td>5,300</td>
<td>N/A</td>
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<tr>
<td>Woodward Canyon Winery</td>
<td>15,000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>Wyvern Cellars</td>
<td>20,000</td>
<td>35,700</td>
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<tr>
<td>Yakima River Winery</td>
<td>24,000</td>
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<td>90</td>
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