

# **Air Quality Report Walmart Retail Store Tumwater, Washington**

July 22, 2005

Prepared for

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## EXECUTIVE SUMMARY

The Wal-Mart Corporation is proposing to construct a 208,000 square foot (ft<sup>2</sup>) retail store on a site approximately 20 acres in size. The proposed project is along Littlerock Road, in the City of Tumwater, Thurston County, Washington. Two site plans are proposed.

Air quality in the project area is regulated by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and the Olympic Region Clean Air Agency (ORCAA). EPA establishes air quality standards nationally, while Ecology is responsible for implementing state air quality laws and regulations. Locally within Thurston County, and more specifically the City of Tumwater, ORCAA is one of seven regional air pollution agencies that have air quality regulatory and enforcement authority in Washington State. Under the federal Clean Air Act, EPA established the National Ambient Air Quality Standards (NAAQS), which are health based standards that specify maximum concentrations for carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns (PM<sub>2.5</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb), and nitrogen oxides (NO<sub>x</sub>). Washington State has adopted the federal air quality standards, and they apply in the Tumwater project area.

For PM<sub>10</sub>, the City of Tumwater is within a federally designated air quality area classified as a maintenance area, which is a geographical region that has had PM<sub>10</sub> concentrations previously above the NAAQS, but recently has achieved compliance with the NAAQS. No violation of the NAAQS for PM<sub>10</sub> has been recorded at the closest monitoring station over the last 17 years. Further, EPA has yet to recommend any models or procedures to accurately estimate PM<sub>10</sub> or PM<sub>2.5</sub> concentrations, therefore neither PM<sub>10</sub> nor PM<sub>2.5</sub> concentrations can be modeled and predicted. Particulate emissions from projects are best controlled by mitigation measures during construction and operation.

Predicting localized PM<sub>10</sub> concentrations in the project-level analysis currently is not possible, as EPA has yet to issue modeling guidance for predicting PM<sub>10</sub> concentrations near roadways. However, by implementing the PM<sub>10</sub> mitigation measures, the proposed project will not increase the frequency or severity of any existing violations of the PM<sub>10</sub> standard, nor would it create a new violation of the NAAQS for PM<sub>10</sub>.

The City of Tumwater is within a federally designated air quality area classified as an attainment area for CO and O<sub>3</sub>. Because of this classification and according to the EPA, the proposed project does not require a project level analysis on these pollutants. It is assumed that the proposed project will not increase CO and O<sub>3</sub> levels above the NAAQS.

# TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
1.1 BACKGROUND	1-1
1.2 DESCRIPTIONS OF ALTERNATIVES	1-1
1.3 AIR POLLUTANTS OF CONCERN	1-2
1.3.1 Particulate Matter	1-2
1.3.2 Carbon Monoxide	1-3
1.3.3 Ozone	1-3
1.3.4 Nitrogen Oxides	1-3
2.0 AFFECTED ENVIRONMENT	2-1
2.1 AIR QUALITY STANDARDS	2-1
2.2 CRITERIA POLLUTANTS	2-1
2.2.1 Regional Designations	2-2
2.2.2 Conformity Findings	2-3
2.3 EXISTING AIR QUALITY	2-3
2.4 STUDIES AND COORDINATION	2-4
3.0 POTENTIAL AIR QUALITY IMPACTS	3-1
3.1 CONSTRUCTION IMPACTS	3-1
3.2 OPERATIONAL IMPACTS	3-1
4.0 MITIGATION MEASURES	4-1
4.1 CONSTRUCTION MITIGATION	4-1
4.2 OPERATIONAL MITIGATION	4-2
5.0 CONFORMITY DETERMINATION	5-1
6.0 USE OF THIS REPORT	6-1
7.0 REFERENCES	7-1

## LIST OF FIGURES

<u>Figure</u>	<u>Title</u>
1	Vicinity Map
2	2007 Build Proposed Site
3	2007 Build Alternate Site

## **1.0 INTRODUCTION**

The Wal-Mart Corporation is proposing to construct a 208,000 square foot (ft<sup>2</sup>) retail store on an approximately 20 acre parcel within the City of Tumwater (City), Washington. The proposed retail shopping area will be limited to a one-story building approximately 30 ft in height and include associated parking areas. Supplier truck loading dock areas would be located along the east side of the building, facing Interstate 5 (I-5). A lease lot is located at the north end of the site for the future establishment of a gasoline service station.

This report evaluates the air quality and potential impacts resulting from the proposed project. This report includes a qualitative approach, a project background discussion, a description of potential air pollutants resulting from the retail store, a discussion of the affected environment, a review of existing regulations, and identification of potential air quality impacts related to the retail store.

### **1.1 BACKGROUND**

The proposed project site is located along the east side of Littlerock Road in the City of Tumwater (Figure 1). Land uses surrounding the proposed site include commercial/retail development located predominately in the north end of the project area and transitioning to residential in the central and south end of the project area. The proximity of these land uses to surrounding roadways, I-5 to the east, Littlerock Road immediately to the west, Israel Road SW to the south, and Trosper Road to the north of the site, generate a steady flow of traffic in the project area. These arterials service the majority of the traffic in the area.

The proposed site is bounded by two large commercial establishments, one is Costco to the north and the other is The Home Depot to the south. Also, several restaurants, gasoline stations, strip malls, an automobile junk yard, and a few office buildings are within the immediate project site along Littlerock Road. To the west and southwest of the proposed site are a middle school, two cemeteries, and numerous residential homes. In addition, a mobile home park is present between two commercial establishments to the northwest of the project site.

### **1.2 DESCRIPTIONS OF ALTERNATIVES**

Two alternatives are proposed for the project, the Proposed Site Plan and the Alternate Site Plan. Under site plans the proposed retail store will be located in the eastern portion of the 20-acre lot. A signalized intersection will be installed to ease traffic congestion at the intersection of Costco/Albany Access and Littlerock Road.

The Proposed Site Plan has Kingswood Drive dividing the parking lot of the proposed retail store into two separate parking areas (Figure 2), leaving parking available on either side of this roadway. Access points on Kingswood Drive will allow vehicles to enter either parking lot. A vehicle roundabout at the intersection of Kingswood Drive and Littlerock Road is included as part of the City's planned improvements to Littlerock Road and is included in the design of this site plan. The purpose of this roundabout is to slow vehicle speeds in the project area and keep a constant flow of traffic along Littlerock Road.

The Alternate Site Plan includes realignment of Kingswood Drive at the southern end of the site (Figure 3), where the roadway will not divide the parking lot into two areas and create a crossing hazard. Several access points from the proposed retail store's parking lot will connect to Kingswood Drive to allow vehicles to enter and exit the lot.

### **1.3 AIR POLLUTANTS OF CONCERN**

Air pollutants associated with transportation and development projects in Washington State primarily are particulate matter (PM) and carbon monoxide (CO). Particulate matter is a major concern for projects in Thurston County, where concentrations have previously either approached or exceeded air quality standards.

The following paragraphs summarize the air pollutants of concern and their attributed implications on human health.

#### **1.3.1 PARTICULATE MATTER**

Air pollution in the form of particulate matter includes small particles of dust, soot, and organic matter suspended in the atmosphere. Particulate matter can affect human health, visibility, and plant growth materials. The two classes of particulate matter are  $PM_{10}$  (coarse particulate matter less than 10 microns in aerodynamic diameter), and  $PM_{2.5}$  (fine particulate matter 2.5 microns or less in aerodynamic diameter). Both consist of many different types of particles that vary in their chemical activity and toxicity.  $PM_{2.5}$  tends to be a greater health risk since it cannot be removed from the lungs once it is deeply inhaled and could potentially lead to respiratory diseases and cancer. Particulate matter may carry absorbed toxic substances and the particle itself may be inherently toxic. Sources of particulate include motor vehicles; industrial boilers; wood stoves; open burning, crushing, and grinding associated with mines and quarries; wildfires; dust from paved and unpaved roads; agriculture and forestry; and constructions activities. High particulate matter concentrations can occur in fall and winter during periods of air stagnation and when wood is burned more frequently for heat.

### **1.3.2 CARBON MONOXIDE**

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas that reduces the blood's capacity to carry oxygen to organs and tissue. The effects of CO include drowsiness, headaches, increased heart disease, and increased infant mortality. Major sources of CO are vehicle exhaust, industrial heating, wood stoves, and outdoor burning. CO from vehicle exhaust results from incomplete combustion of fuel and is emitted directly from vehicle tailpipes. CO levels are generally highest near roadways, at interchange and intersections with high vehicle volumes, slow speeds, and higher congestion. CO concentrations are highest during late autumn and winter, during periods with light wind and cold temperatures. Emissions creating CO from vehicles' exhaust have been reduced in most areas as a result of federal new vehicle emission standards and vehicle inspection and maintenance (I&M) programs.

### **1.3.3 OZONE**

Ozone (O<sub>3</sub>) is a secondary pollutant formed in the atmosphere by the interaction of sunlight with precursor chemicals generated primarily in large metropolitan areas. Because the photochemical process takes several hours, communities downwind of the large urban areas are where the highest concentrations are measured. Ozone is a pulmonary irritant that affects lung tissues and respiratory functions. Ozone impairs the normal function of the lungs and at higher concentrations causes lung tightness, coughing, and wheezing. People with chronic respiratory problems, such as asthma, seem most sensitive to ozone. Studies show that ozone also damages forests, particularly since ozone levels tend to be higher at the mountain elevations.

O<sub>3</sub> levels are generally within the National Ambient Air Quality Standards (NAAQS) and regional standards, in part because the mild climate in the region does not feature many of the hot, sunny days favorable for ozone formation.

### **1.3.4 NITROGEN OXIDES**

Nitrogen oxides, or NO<sub>x</sub> (a combination of NO<sub>2</sub> and other particulates in the air which are a precursor to ozone and smog), is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. One common pollutant, nitrogen dioxide (NO<sub>2</sub>), along with particulates in the air can often be seen as a reddish-brown layer over many urban areas (EPA website 2005). NO<sub>x</sub> and the pollutants formed from NO<sub>x</sub> can be transported over long distances and are not confined to areas where it is emitted. Controlling NO<sub>x</sub> is often most effective if done from a regional perspective, rather than focusing on sources in one local area.

Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of  $\text{NO}_x$  are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels.  $\text{NO}_x$  is one of the main ingredients involved in the formation of ground-level ozone (smog), which can have serious health effects.  $\text{NO}_x$  also contributes to the formation of acid rain, which can deteriorate water quality and also can contribute to poor health.

## **2.0 AFFECTED ENVIRONMENT**

### **2.1 AIR QUALITY STANDARDS**

Air quality in the project area is regulated by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and Olympic Region Clean Air Agency (ORCAA). EPA establishes air quality standards nationally, while Ecology is responsible for implementing air quality laws and regulations. Locally within Thurston County, and more specifically, the City, ORCAA is one of seven regional air pollution agencies which have air quality regulatory and enforcement authority in Washington State.

### **2.2 CRITERIA POLLUTANTS**

Under the Clean Air Act, the EPA has established the NAAQS, which specify maximum concentrations for CO, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>, sulfur dioxide (SO<sub>2</sub>), lead (PB), and nitrogen dioxide (NO<sub>2</sub>). These regulated pollutants are referred to as criteria pollutants. The NAAQS apply to outdoor air quality, are based on medical studies, and specify both a concentration and exposure time, such as 1 hour or 1 day. Since sulfur dioxide and lead will not be associated with the construction and operation of the proposed project, they were omitted from Table 1 and this analysis. Washington State and the local air quality agency ORCAA, have adopted the federal NAAQS and therefore, the federal, state, and local air quality standards are identical. These air quality standards provide a basis for evaluating potential impacts and mitigation measures for the proposed project.

**Table 1: Summary of Ambient Air Quality Standards**

Criteria Pollutant	National Ambient Air Quality Standard <sup>1</sup>
Carbon Monoxide (CO) 1-Hour Average (not to be exceeded more than once per year)	35 ppm
8-Hour Average (not to be exceeded more than once per year)	9 ppm
PM <sub>10</sub> Annual Arithmetic Mean	50 µg/m <sup>3</sup>
24-Hour Average Concentration	150 µg/m <sup>3</sup>
PM <sub>2.5</sub> Annual Arithmetic Mean	15 µg/m <sup>3</sup>
24-Hour Average Concentration	65 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> ) 1-Hour Average (not to be exceeded more than once per year)	0.12 ppm
8-Hour Average	0.08 ppm
Nitrogen Dioxide (NO <sub>2</sub> ) Annual Arithmetic Mean	0.053 ppm

<sup>1</sup> Washington State and the local air quality agency ORCAA have adopted the federal NAAQS.  
Sources: 40 United States Code of Federal Regulations Part 50 (1997).  
Washington Administrative Code Chapters 173-470, 173-474, 173-175 (1987).  
Ppm = Parts per million.  
µg/m<sup>3</sup> = Micrograms per cubic meter.

### 2.2.1 REGIONAL DESIGNATIONS

State and federal guidelines establish the standards for healthy air quality. Based on the NAAQS, regions can be classified into three categories; attainment, nonattainment, or maintenance areas. A geographic region that meets or remains lower than the NAAQS primary standard designated by the EPA (Table 1), is considered to be an attainment area. Nonattainment areas exceed the NAAQS standards, and have unhealthy levels of air pollutants. An air quality maintenance area is a geographic region that has previously been considered in nonattainment but has achieved compliance with the NAAQS. A geographic region may be in attainment for one pollutant and nonattainment for another pollutant. A geographic region may also be redesignated from nonattainment to maintenance if successful demonstration indicates an ability to address air quality problems for a period of time.

Thurston County is in attainment for CO, O<sub>3</sub> and all other criteria pollutants. Portions of Thurston County were designated as nonattainment areas for PM<sub>10</sub> in the late 1980's. Significant sources of residential woodsmoke and open burning in the area were the major contributing factors during this period. Restrictions on outdoor burning and limitations on wood burning stoves were implemented to decrease the PM<sub>10</sub> emissions (Moody, R., 2005, personal communication). In 1997, Thurston County, ORCAA, and Ecology developed an Air Quality Maintenance Plan (AQMP) and applied for a redesignation in air quality status from the EPA, based on the improved PM<sub>10</sub> conditions. Following development of the AQMP, and application to the EPA, Thurston County was upgraded to an air quality maintenance area for PM<sub>10</sub> in 2000.

### **2.2.2 CONFORMITY FINDINGS**

Thurston County has been successful in reducing concentrations of PM from wood burning stoves and open field burning in the county. Currently, air pollutants associated with transportation sources account for the majority of PM emissions. Because the City is in a maintenance area, EPA's transportation conformity regulations apply. Conformity is a means by which air quality at a specific project location is evaluated. Conformity is demonstrated by showing that the project will not cause or contribute to any new violation, will not increase the frequency or severity of any existing violation, and will not delay timely attainment of the NAAQS. Because the proposed project is located within a PM<sub>10</sub> maintenance area, it must be evaluated for conformity to the AQMP for PM<sub>10</sub>. CO or O<sub>3</sub> conformity determinations are not required because the project area is in attainment for these pollutants and all other criteria pollutants.

There are currently no EPA approved models or methodology available to analyze individual projects for their potential to cause or contribute to PM<sub>10</sub> or PM<sub>2.5</sub> concentrations. Under these circumstances EPA requires PM<sub>10</sub> emissions during construction and operation from the proposed project to be mitigated by implementation of best management practices measures during construction as discussed below in Section 4.0.

### **2.3 EXISTING AIR QUALITY**

ORCAA has been conducting continuous air quality monitoring in Thurston County since 1985. The closest monitoring station to the project is located at Mountain View Elementary School in Lacey, Washington, approximately 8 miles east of the proposed project site. Although the Thurston County area is designated as a maintenance area for PM<sub>10</sub>, the Mountain View Elementary School monitoring station

has not recorded an air quality concentration above the maximum PM<sub>10</sub> 24-hour NAAQS of 150 µg/m<sup>3</sup> since 1989 (ORCAA 1995 and Moody, R., 2005, personal communication).

## **2.4 STUDIES AND COORDINATION**

Projects which may increase or decrease traffic within a proposed project area are required to have an analysis conducted to predict future transportation-related air quality problems. A transportation analysis for a proposed project will compare traffic volumes on roadways in the area, intersection level of service (LOS), percentage of trucks, trip distribution, description of roadway arterials, and traffic safety for both the current year and the opening year. Potential air quality impacts will primarily depend on traffic volumes and LOS.

Traffic operations at an intersection are described alphabetically with a range of LOS A through F, with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. LOS is an indication of delay and lower LOS means increased idling and an increase in the traffic related pollutants of concern; however, a low LOS does not necessarily correlate to exceedance of the NAAQS air quality standards. The LOS for roadways and intersections in or directly affected by the proposed project are shown in Table 2. This table includes the LOS for 2004 (existing conditions, without the project being built), 2007 no action conditions (also without the project being built), and 2007 (year of opening) full build-out of the Proposed Site Plan and full build-out of the Alternate Site Plan. Three of the six intersections that currently exist in the project area are predicted to experience a LOS similar to existing conditions in 2004 (Table 2). Two of the six intersections which will be affected by the proposed project will see an overall improvement in LOS because of the planned improvements proposed by the City at surrounding intersections, and one intersection will experience a decrease in LOS. In addition to the existing six intersections, four new intersections will be included as part of the proposed project in which only one will experience a low LOS.

**Table 2: PM Peak Hour Level of Service (LOS)**

<b>Location</b>	<b>2004 Existing</b>	<b>2007 No Action</b>	<b>2007 Build Proposed Site Plan</b>	<b>2007 Build Alternative Site Plan</b>
Littlerock Road / Trosper Road	D	D	D	D
Littlerock Road / Fred Meyers / Costco North	A	B	A	A
Littlerock Road / Israel Road SW	B	B	D	D
Littlerock Road / Costco / Albany Access	F	F	F	F
Littlerock Road / Kingswood Drive	D	A	A	A
Littlerock Road / Tumwater Boulevard	E	A	A	A
Kingswood Drive / Southwest Driveway	ND	ND	F	A
Kingswood Drive / South Center Driveway	ND	ND	ND	B
Kingswood Drive / Southeast Driveway	ND	ND	B	B
Littlerock Road / West Driveway	ND	ND	ND	C

Source: The Transpo Group 2005

ND: These intersections will not be designed under this alternative.

The City has established LOS standards described in the Tumwater Comprehensive Plan and adopted in the Tumwater Municipal Code (TMC) Section 15.48. This regulation provides that any proposed project should not degrade an intersection affected by the proposed project below a LOS of D in the year of opening, unless approved by the City. This regulation applies not only to intersections, but also to driveways and access ways which intersect city roadways. Littlerock Road and the Costco/Albany Access and the Kingswood Drive and Southwest Driveway are the only intersections that fall below a LOS of D.

For the Littlerock Road and Costco/Albany Access intersection the City of Tumwater has reviewed the Transportation Impact Analysis report and is aware of the low LOS and a traffic light is proposed at that intersection (The Transpo Group 2005), which should raise the LOS. For the Kingswood Drive and Southwest Driveway intersection a LOS of F is predicted under the 2007 Proposed Site Plan. As stated in the Transportation Impact Analysis (The Transpo Group 2005), this intersection's LOS is a function of the traffic prediction model and a LOS of F is not anticipated through the operation of the proposed retail store. Further discussion can be found in the transportation analysis.

## **3.0 POTENTIAL AIR QUALITY IMPACTS**

### **3.1 CONSTRUCTION IMPACTS**

Construction activities, if not properly mitigated, could temporarily generate PM<sub>10</sub> and small amounts of other pollutants. Fugitive dust could escape from the construction site and from soil blown from uncovered trucks carrying construction materials. Vehicles leaving the site could deposit mud on public streets, which would become a source of airborne dust after it dries. CO, PM<sub>10</sub>, and NO<sub>x</sub> would be emitted from construction equipment. Construction emissions would be greatest during the excavation phase because most emissions are associated with removal of dirt from the site. No EPA accepted model is currently available to predict air pollutant concentrations during construction.

Particulate emissions will be associated with land clearing, ground excavation, and cut-and-fill operations. Emissions will vary from day to day, depending on the level of activity, specific operations, and weather conditions. Particulate emissions will depend on soil moisture, the soil's silt content, wind speed and direction, and the amount and type of equipment operating. Particles will settle near the source, while fine particles will be dispersed over greater distances from the construction site. The quantity of particulate emissions will be proportional to the area of the construction operations and the level of activity. Any air quality construction impacts would be considered temporary or short-term impacts.

In addition to PM<sub>10</sub> emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO and NO<sub>x</sub> in exhaust emissions. These emissions will be temporary and limited to the immediate area surrounding the proposed construction site. Construction vehicles will be a small fraction of the City's total overall traffic. Thus, emissions generated by the construction equipment would contribute a small amount of CO compared to the automobile traffic in the project area.

Some phases of construction will result in short-term odors, particularly during paving operations using asphalt. Odors might be detectable to some people near the project site and would be diluted as distance increases from the proposed project area.

### **3.2 OPERATIONAL IMPACTS**

Currently, air quality concentrations within Thurston County are lower than federal, state, and local air quality standards for all criteria pollutants.

For both site plans, in 2007 the LOS at the six existing intersections within the immediate project area will remain below the City's LOS D standard except at the intersection of Littlerock Road and Costco/Albany Access. The existing conditions (2004 LOS analysis) have this intersection operating at a LOS F. The proposed retail development could contribute to additional traffic delays at this intersection,

keeping the LOS at level F. Of the four intersections that are proposed to accommodate the retail development under the Proposed Site Plan, one intersection (Kingswood Drive and Southwest Driveway) is predicted to have a LOS of F. While the predicted increase in traffic under the Proposed Site Plan contributes to the low LOS at the intersection of Kingswood Drive and Southwest Driveway, it is expected that air quality concentrations will remain below the NAAQS.

Overall, air quality concentrations from the operation of the proposed retail store will remain below the federal, state, and local air quality standards.

## 4.0 MITIGATION MEASURES

### 4.1 CONSTRUCTION MITIGATION

Particulate emissions (in the form of fugitive dust during construction activities) are regulated by ORCAA and Ecology. According to ORCAA regulations, Sections 9.05(c), reasonable and/or appropriate precautions should be taken to prevent fugitive particulate material from becoming airborne. Ecology standards can also be found in the Washington Administrative Code (WAC) Sections 173-400-040, 050, 060, and 070, which contain similar language as ORCAA, and if both are implemented, will limit fugitive dust emissions.

Construction impacts will be mitigated by incorporating best management practices (BMPs) into the project's construction plans and specifications using both Ecology and ORCAA regulations. The following source control BMP mitigation measures will be implemented to control PM<sub>10</sub>, deposition of particulate matter, and emissions during construction. The following measures would mitigate impacts to the surrounding area during construction:

- Lowering speed limits in the construction area. High vehicle speeds increase the amount of dust stirred up from unpaved roads.
- As soon as feasible, upgrading unpaved road surfaces and truck haul routes by installing base course crushed rock or paving.
- Spraying water or applying chemicals during land clearing operations, construction operations, and road grading to reduce emissions and deposition of particulate matter.
- Covering open bodied trucks transporting materials, wet materials in trucks, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce dust and deposition of particulates during transportation.
- Providing wheel washers to remove particulate matter from wheels, wheel wells, fenders, tailgates, and running boards that would otherwise be carried offsite by vehicles and trucks. This would decrease deposition of particulate matter on area roadways.
- Sweeping of public roadways regularly to remove particulate matter deposited on paved roads and subsequent wind blown dust.
- Constructing stabilized construction entrances where trucks enter public roads, to reduce mud track-out.
- Planting vegetative cover as soon as possible after grading would reduce windblown particulate matter in the area.
- Requiring appropriate emission-control devices on construction equipment powered by gasoline or diesel fuel would reduce CO, NO<sub>x</sub>, and PM<sub>10</sub> emissions in exhaust. Using relatively new, well-maintained equipment also would reduce emissions.

By applying these mitigation measures, construction emissions will be lowered and construction impacts on air quality will be minimal.

## **4.2 OPERATIONAL MITIGATION**

The City of Tumwater is aware of the low LOS at the intersection of Kingswood Drive and Costco/Albany Access. The installation of a traffic signal has been proposed as mitigation for the low LOS, as required by the TMC. This mitigation effort is expected to improve the LOS at the intersection of Kingswood Drive and Costco/Albany Access.

The low LOS at the intersection of Kingswood Drive and Southwest Driveway is a function of the traffic prediction model and the intersection is not anticipated to operate at a LOS of F through the operation of the proposed retail store (The Transpo Group 2005).

PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and NO<sub>x</sub> emissions or any other criteria pollutant concentration will not increase above the NAAQS and will not contribute to any significant air quality impacts during daily operation of or traffic surrounding the retail store.

## 5.0 CONFORMITY DETERMINATION

The proposed retail store occurs within the Thurston County PM<sub>10</sub> maintenance area; therefore, the proposed project must meet the conformity regulations for emissions. Because the project area is currently in attainment with the CO and O<sub>3</sub> standards, the proposed project does not have to meet the conformity regulations for these or any other criteria pollutants. Conformity is defined as eliminating or reducing potential violations of the NAAQS and achieving attainment.

Predicting localized PM<sub>10</sub> concentrations in the project-level analysis currently is not possible, as EPA has yet to issue modeling guidance for predicting PM<sub>10</sub> concentrations near roadways. However, by implementing the PM<sub>10</sub> mitigation measures, the proposed project will not increase the frequency or severity of any existing violations of the PM<sub>10</sub> standard, nor would it create a new violation of the NAAQS for PM<sub>10</sub>.

The proposed project will conform to all applicable regulations and to all requirements of the Clean Air Act Amendments of 1990 [42 United States Code of Federal Regulations, Section 7506(c)].

## 6.0 USE OF THIS REPORT

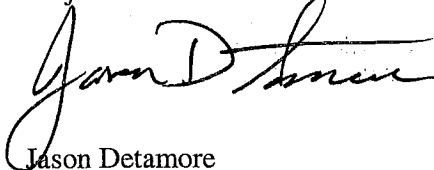
This report has been prepared for the exclusive use of PACLAND for specific application to the Tumwater Retail Development. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

LANDAU ASSOCIATES, INC.



For Shannon E. Moore  
Project Environmental Scientist



Jason Detamore  
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SEM/rgm

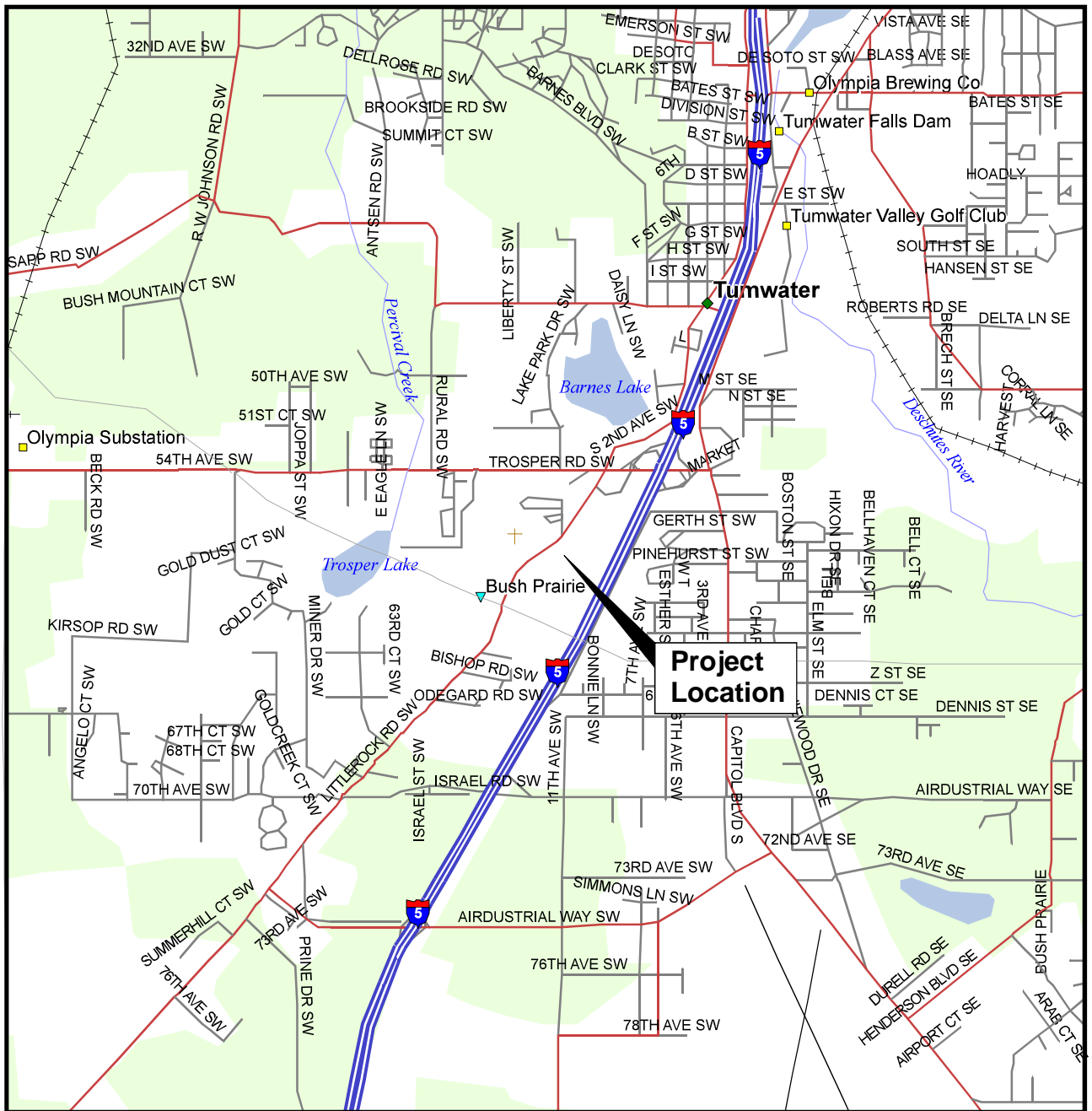
## 7.0 REFERENCES

Environmental Protection Agency (EPA) website. 2005. *Air Pollutants*.  
<http://www.epa.gov/air/urbanair/nox/index.html> Accessed June 2, 2005.

Moody, R. 2005. Personal communication (telephone conversation with Mr. Jason Detamore, Landau Associates, Edmonds, Washington). Mr. Robert Moody, Olympic Region Clean Air Agency, Lacey, Washington. *Re: Thurston County Air Quality Designation*.

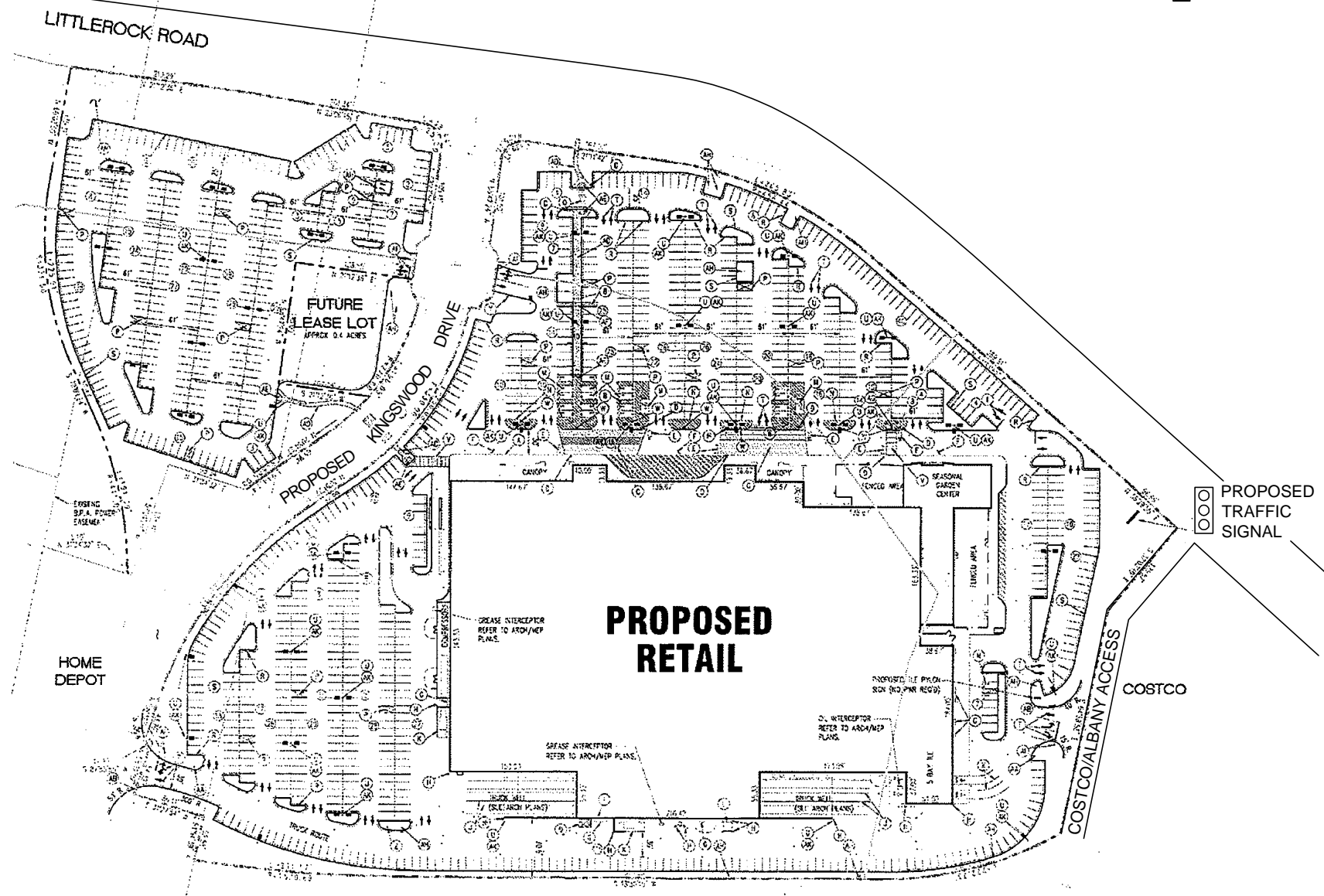
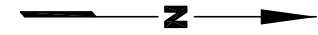
ORCAA. 1995. *PM<sub>10</sub> Saturation Study, Thurston County, Washington*. Olympic Region Clean Air Agency, Lacey, Washington. Updated 2003.

The Transpo Group. 2005. *Transportation Impact Analysis, Tumwater Retail*, December 2004. Prepared for Pacland Engineering.



Map from DeLorme Street Atlas USA, 2002





Source: The Transpo Group 2005

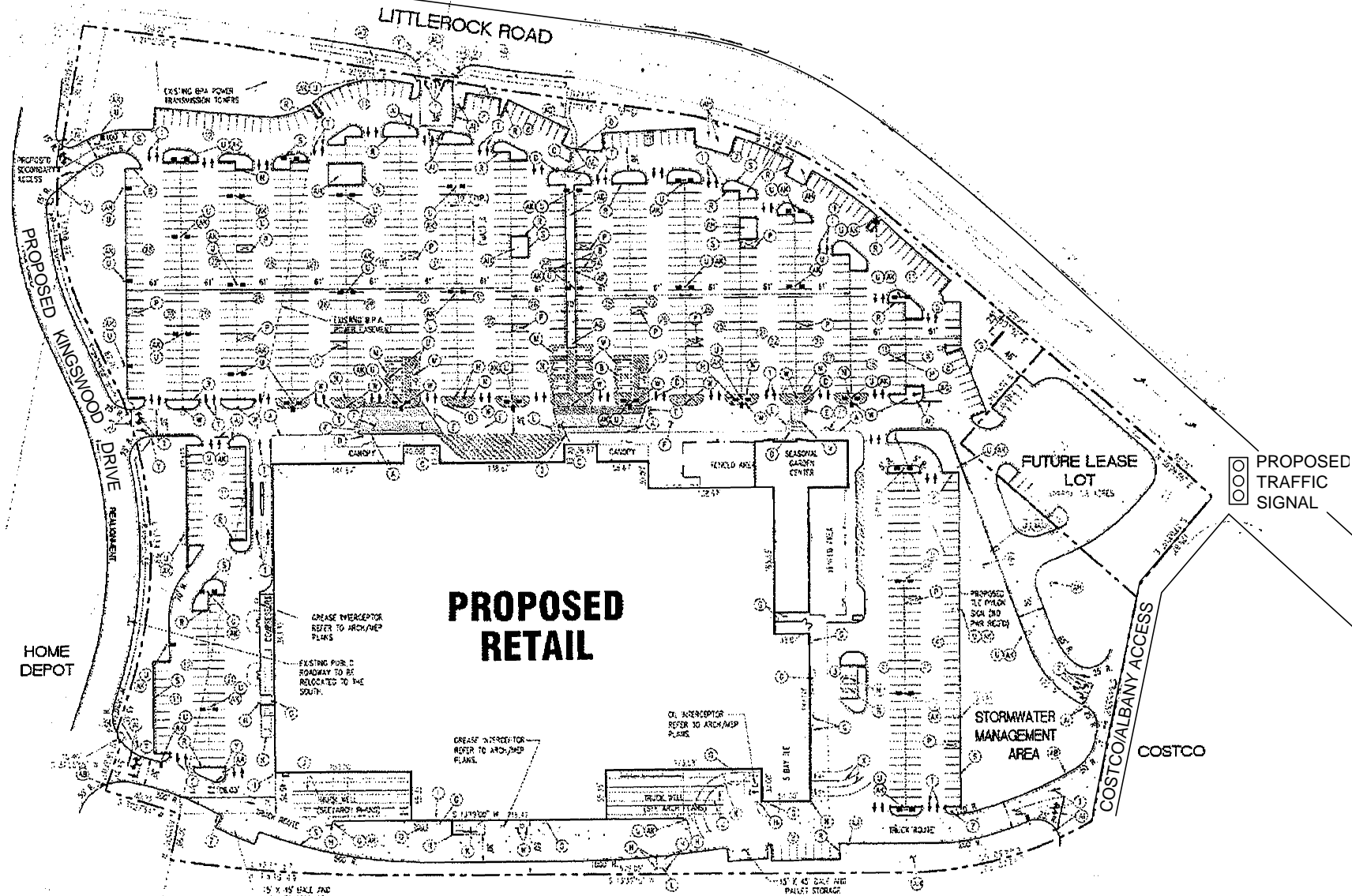
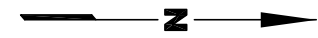


Not to Scale

Tumwater Retail  
Tumwater, Washington

2007 Build  
Proposed Site

Figure  
2



Source: The Transpo Group 2005



Not to Scale

Tumwater Retail  
Tumwater, Washington

2007 Build  
Alternate Site

Figure  
**3**