BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE EMPLOYMENT AND INDUSTRIAL AREAS MAP OF TITLE 4 OF THE URBAN GROWTH MANAGEMENT FUNCTIONAL PLAN UPON APPLICATION BY THE CITY OF PORTLAND

Ordinance No. 10-1246
Introduced by Councilor Robert Liberty

WHEREAS, subsection 3.07.450H of Title 4 of the Urban Growth Management Functional Plan provides for amendment of the Employment and Industrial Areas Map by the Metro Council at the request of a city or a county and sets forth criteria for amendments; and

WHEREAS, the city of Portland applied to amend the map to change the designation of 53.4 acres in northwest Portland from Industrial Area to Employment Area; and

WHEREAS, the Council held a public hearing on the application on September __, 2010; and

WHEREAS, the Council reviewed the city's application and finds that the proposed changes to the Title 4 map meet the criteria in subsection 3.07.450H, as indicated in Exhibit B; now, therefore,

IT IS ORDERED THAT:

1. The Employment and Industrial Areas Map of Title 4 of Metro's Urban Growth Management Functional Plan is hereby amended as shown on Exhibit A, attached to this ordinance.

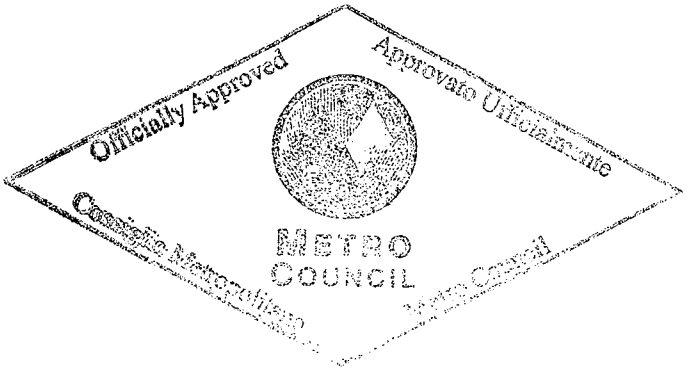
2. The Council adopts the findings of fact and conclusions of law in Exhibit B, incorporated into this ordinance, to explain how the map amendment complies with state and regional laws.

ENTERED this 16 day of September, 2010

Carlotta Collette, Deputy Council President

Approved as to form:

Daniel B. Cooper, Metro Attorney



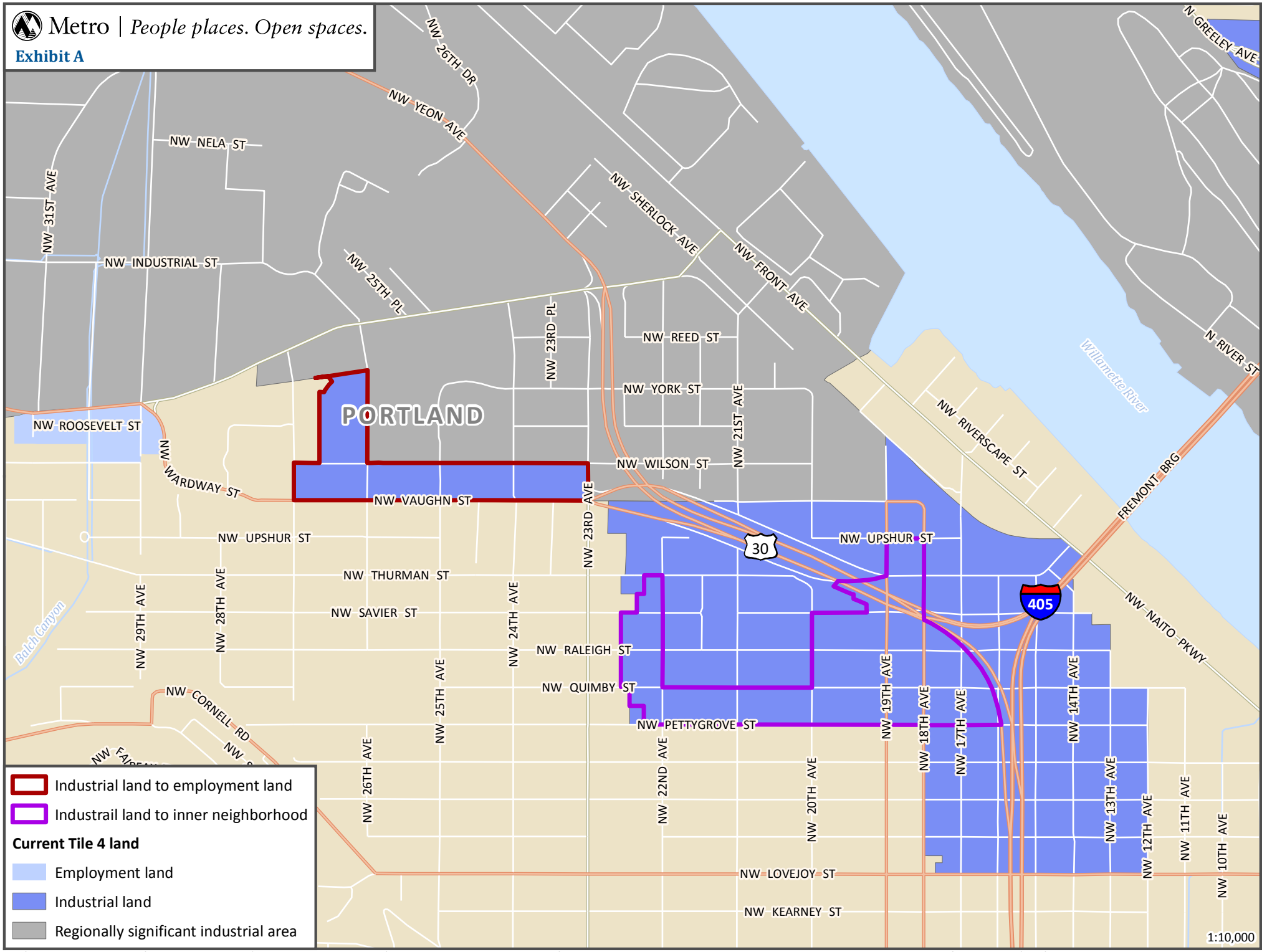


Exhibit B to Ordinance No. 10-1246

Findings of Fact and Conclusions of Law

Title 4 of the Urban Growth Management Functional Plan (UGMFP) authorizes local governments to seek amendments to Title 4's map of industrial and other employment areas. Title 4 prescribes criteria that local governments must satisfy for an amendment to the map. The Metro Council makes the following findings and reaches the following conclusions to address the criteria, found at Metro Code 3.07.450H:

Criterion A: the amendment would not reduce the jobs capacity of the city below the number shown on Table 3.07-1 of Title 1 of the UGMFP

The Council accepts the analysis of city compliance with this criterion in the Staff Report dated August 30. The Council concludes that the amendment complies with Criterion A

Criterion B: the amendment would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan, or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses.

The Council accepts the analysis of city compliance with this criterion in the Staff Report dated August 30. The Council concludes that the amendment complies with Criterion B.

Criterion C: the amendment would not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services in their market areas

The Council accepts the analysis of city compliance with this criterion in the Staff Report entitled dated August 30. The Council concludes that the amendment complies with Criterion C.

Criterion D: the amendment would not reduce the integrity or viability of a traded sector cluster of industries

The Council accepts the analysis of city compliance with this criterion in the Staff Report entitled dated August 30. The Council concludes that the amendment complies with Criterion D.

Criterion E: the amendment would not create of worsen a significant imbalance between jobs and housing in a regional market area

The Council accepts the analysis of city compliance with this criterion in the Staff Report entitled dated August 30. The Council concludes that the amendment complies with Criterion E.

Criterion F: if the subject property is designated Regionally Significant Industrial Area, would not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities

Because the amendment applies to parcels that are not designated Regionally Significant Industrial Areas on the Title 4 map, this criterion does not apply.

Regional Framework Plan: Title 4 of the UGMFP implements the policies of the RFP. Because the proposed amendment complies with Title 4, the Council concludes that it also complies with the RFP. Metro Code 3.07.450I.

Statewide Planning Goals

Goal 1: Metro followed the procedures for map amendments in Title 4, the Metro charter and the post-acknowledgment plan amendment process. The Council held a public hearing following publication of the agenda and materials, including the staff report at the Metro website. These actions provided opportunities for public involvement in the process of amendment of the Title 4 map and complied with Goal 1.

Goal 2: This matter came before the Metro Council on application of the city of Portland. Coordination with the city has been accomplished through the process. As noted above, the proposed amendment is consistent with the Regional Framework Plan and the Urban Growth Management Functional Plan.

Goal 3: The proposed amendment involves land inside the regional UGB. Goal 3 does not apply.

Goal 4: The proposed amendment involves land inside the regional UGB. Goal 4 does not apply.

Goal 5: The Council relies upon the findings and conclusion on Goal 5 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 5.

Goal 6: The Council relies upon the findings and conclusion on Goal 6 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 6.

Goal 7: The Council relies upon the findings and conclusion on Goal 7 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive

plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 7.

Goal 8: The Council relies upon the findings and conclusion on Goal 7 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 8.

Goal 9: The Council relies upon the findings and conclusion on Goal 9 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. Goal 9 does not apply to Metro. Nonetheless, the proposed map amendment complies with Goal 9.

Goal 10: The Council relies upon the findings and conclusion on Goal 10 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 10.

Goal 11: The Council relies upon the findings and conclusion on Goal 11 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 11.

Goal 12: The Council relies upon the findings and conclusion on Goal 12 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 12.

Goal 13: The Council relies upon the findings and conclusion on Goal 13 and city implementation measures made by the city of Portland in its order approving amendments to its comprehensive plan and land use regulations prior to its application for an amendment to the Title 4 map. The proposed map amendment complies with Goal 13.

Goal 14: The proposed amendment to the Title 4 map does not involve the regional UGB. Nor does it involve the use of "urbanizable" land as described in the statewide planning goals. Goal 14 does not apply to the proposed amendment.

Goal 15: The properties involved in the proposed Title 4 map amendment do not lie within the Willamette River Greenway. Goal 15 does not apply to the proposed amendment.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 10-1246, FOR THE PURPOSE OF AMENDING THE EMPLOYMENT AND INDUSTRIAL AREAS MAP OF TITLE 4 OF THE URBAN GROWTH MANAGEMENT FUNCTIONAL PLAN UPON APPLICATION BY CITY OF PORTLAND

Date: August 30, 2010

Prepared by: Ted Reid
503-797-1768
ted.reid@oregonmetro.gov

BACKGROUND INFORMATION

PETITIONER: City of Portland
APPLICABLE REVIEW CRITERIA: Metro Code section 3.07.450 H

The Regional Framework Plan calls for a strong regional economy. To improve the regional economy, Title 4 of the Urban Growth Management Functional Plan ("Industrial and Other Employment Areas") seeks to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses in Regionally Significant Industrial Areas (RSIAs), Industrial and Employment Areas. Title 4 also seeks to provide the benefits of "clustering" to those industries that operate more productively and efficiently in proximity to one another than in dispersed locations. Title 4 further seeks to protect the capacity and efficiency of the region's transportation system for the movement of goods and services and to encourage the location of other types of employment in Centers, Employment Areas, Corridors, Main Streets and Station Communities. Title 4 is implemented through city and county comprehensive plans and zoning.

The City of Portland requests that the Metro Council amend the Employment and Industrial Areas Map to authorize uses not allowed under Title 4. The proposed map amendment would apply to 53.4 acres in the City of Portland's Northwest District, including two sites totaling 16.9 acres and 36.5 acres. These sites are currently developed. Both sites are designated Industrial on Metro's Employment and Industrial Areas Map. The City of Portland has requested that the 16.9-acre site be designated Employment and that the 36.5-acre site be designated as Inner Neighborhood. The proposed changes to the Title 4 map are shown in Attachment 1. These proposed changes would allow additional commercial retail and professional service uses on these sites. The zoning proposed by the City would also allow residential uses.

On June 17, 2010, the Portland City Council adopted Ordinance 183915, which amended the Portland Comprehensive Plan Map and the city's O fficial Zoning Map to reflect the designations that prompt this request for a Title 4 Map amendment. The City's June 17, 2010 ordinance was not appealed and so has, by default, been acknowledged as compliant with Statewide Planning Goals pursuant to ORS 197.625(1). The City's ordinance appropriately contains a condition making the June 17, 2010 re-designation contingent upon an amendment by the Metro Council to the Title 4 map.

The City of Portland's application for the proposed Title 4 Map amendment is included as Attachment 2.

APPLICABLE REVIEW CRITERIA

The criteria for amendments to the Employment and Industrial Areas Map are contained in Metro Code 3.07.450 H. The criteria (**in bold**), petitioner responses to the criteria *(in italics*), and staff analysis follow. Petitioner references to exhibits pertain to exhibits in the City's application, included as Attachments 2 and 3 to this staff report.

Criterion A: Would not reduce the jobs capacity of the city or county below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan

Petitioner Response

Both changes are to zones or Comprehensive Plan designations that allow a higher employment density than the current zoning/Comprehensive Plan designations. Therefore this criterion is met.

Metro Staff Analysis

Metro staff concurs with the petitioner's assessment that the proposed zoning and comprehensive plan changes would result in capacity for more jobs. The proposed change to the Title 4 map would not have the effect of reducing the jobs capacity of the City of Portland below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan.

Metro staff believes that this criterion is met.

Criterion B: Would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan ("RTP"), or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan ("OHP") for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses

Petitioner Response

Metro's RTP Table 2.4, Regional Mobility Policy designates level of service (LOS) "E" as the standard for off-peak hours performance. Interstate 405 is classified as a Main Freight Roadway and NW Nicolai Street is identified as a Freight Road Connector. In April 2010 traffic analysis was conducted for three intersections: NW Nicolai at NW Wardway St., NW Nicolai at US 30, and NW Vaughn at NW 23rd Ave. The intersections performed at Level of Service C, B and D, respectively, in 2010. The analysis showed that in 2030, all three intersections would continue to perform at the same level of service with the proposed zoning in place. This is above the LOS E standard criterion required by Title 4 (see Exhibit 2, Traffic Analysis for Title 4).

The three intersections studied in April 2010 also met the volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan (OHP) for state highways. The standard listed in Table 7 is .99 volume/capacity (v/c). According to Exhibit 3, Supplement to Traffic Analysis for Title 4, in 2030, the v/c for the three intersections are .56, .76 and .93.

Therefore this criterion is met.

Metro Staff Analysis

The applicable freight routes in the vicinity are NW Nicolai Street and US 30. Metro staff asked the City to review the following intersections for determining compliance with this criterion in Title 4:

- NW Nicolai St. at US 30
- NW Nicolai St. at NW Wardway St. / NW 29th Ave.
- NW Vaughn St. at NW 23rd Ave. / US 30 (I-405) ramps

Off-peak hours are assessed since those are the times when freight transport is most likely to occur in order to avoid delays from commute hour traffic. As part of their petition, the City conducted a traffic analysis to address this criterion, which can be found as Attachment 3 to this staff report. As indicated in a memo included as Attachment 4 to this staff report, Metro's transportation engineer believes that the City has demonstrated to a reasonable extent that the proposed changes would not reduce off-peak performance on either facility below standards contained in the RTP or OHP. As documented in the City's analysis, the proposed land use changes are expected to have a negligible off-peak traffic impact.

Metro staff believes that this criterion is met.

Criterion C: Would not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services in their market areas

Petitioner Response

Because Area 2 (north of Pettygrove) already has a high concentration of residential and commercial uses, changing the zoning and designation for this area will actually be an expansion of the Central City, reinforcing the role of the Central City as the principal location of retail, cultural, and civic services in the region. Area 1 (directly north of Vaughn) will become a buffer zone between the industrial sanctuary and the Central City. Therefore this criterion is met.

Metro Staff Analysis

Currently, there is no formally-adopted boundary for the Central City. However, as a practical matter, if the proposed Title 4 map amendment is adopted, the area under consideration, especially the area north of NW Pettygrove, would function as part of the Central City. This is because the proposed uses and densities are consistent with development found in the Central City. The proposal presents a unique opportunity to encourage greater levels of urban activity in a central location. Consequently, staff believes that the proposed change to the Title 4 map reinforces, and does not diminish, the intended function of the Central City as the principal location of retail, cultural and civic services in this market area.

Metro staff believes that this criterion is met.

Criterion D: Would not reduce the integrity or viability of a traded sector cluster of industries

Petitioner Response

First, the resulting reduction in available land for industry-related clusters in the Working Harbor (primarily metals manufacturing and distribution) will be offset by expansion of developable land for office-related clusters in the NW portion of the Central City (particularly creative services and software). This shift is consistent with office growth trends in the River District. Area 2 (north of Pettygrove) has a mix of distribution facilities, residential, retail, and office uses.

Second, the changes will reinforce a functional boundary along the Vaughn corridor between the Working Harbor's Regionally Significant Industrial Area to the north and the higher density, mixed use development in the expanding Central City to the south, encouraging long-term investments in both areas. This Vaughn corridor boundary (Area 1) was jointly developed in the Guild's Lake Industrial Sanctuary Plan (2001 and 2003) and Northwest District Plan.

Third, the change to Area 1 (north of Vaughn) will reinforce the metals cluster, because it will establish a transition buffer between the expanding Central City and a major steel manufacturer on the north side of Vaughn (ESCO), and ease expansion of ESCO's headquarters offices. Having headquarters offices in proximity to the manufacturing functions creates significant efficiencies for companies. Additionally, Area 1 (north of Vaughn) will become a transitional buffer to keep housing and most retail uses from conflicts with the industrial uses, and the buffer will help resist market pressures for residential and retail uses pressing northward.

Therefore this criterion is met.

Metro Staff Analysis
Traded-sector industries are those in which member firms sell their goods or services into markets for which national or international competition exists. Firms in these sectors are important to the regional economy since they bring wealth into the region by exporting goods or services. The subject location is home to firms in the metal manufacturing and freight and logistics sectors, both of which are traded sectors. Metro staff believes that the proposed Title 4 map amendment responds to evolving economic conditions in the area and does not, in itself, reduce the integrity or viability of a traded-sector cluster of industries. The petitioner has indicated that the proposed change would provide headquarter office expansion opportunities for at least one traded-sector firm (ESCO) and would buffer remaining industrial uses in the vicinity. Likewise, the proposed changes may attract to the area firms in other traded-sector industries, which may favor higher-density office formats. Metro staff concludes that the proposal does not reduce the integrity or viability of a traded sector cluster of industries.

Metro staff believes that this criterion is met.

Criterion E: Would not create or worsen a significant imbalance between jobs and housing in a regional market area
Petitioner Response
There is currently no significant imbalance. Area 1 (north of Vaughn) is changing from a Comprehensive Plan designation of IS (Industrial Sanctuary) to ME (Mixed Employment). Both designations are designed to foster jobs, and housing is severely limited in both. Although the new designation may result in more jobs in the area, the increase will not be significant enough to cause a significant imbalance in the region.

Area 2 (north of Pettygrove) is changing from the IG1 zone with an IS (Industrial Sanctuary) Comprehensive Plan designation to the EXd zone with an EX (Central Employment) Comprehensive Plan designation. While both the Industrial and Employment zones and designations allow jobs, the EXd zone also allows residential development. Because both uses are allowed—and because it is a relatively small area—the changes will not be enough to cause a significant imbalance in the region.

Therefore this criterion is met.

Metro Staff Analysis
The area under consideration is part of the Central City regional market area. According to the Regional Framework Plan, the Central City is intended to act as a regional employment hub. Currently, the Central City fills this role with a high concentration of employment. In the context of the wider market area, the proposed change would represent a relatively small increase in job capacity. Even with high concentrations of employment in the Central City, staff believes that the jobs-to-housing balance of the wider market area is healthy since the Central City is surrounded by many residential areas that are well-connected with multiple transportation modes. Additionally, the residential uses contemplated for this area would help to balance any new employment.

Metro staff believes that this criterion is met.

Criterion F: If the subject property is designated Regionally Significant Industrial Area, would not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities.

Petitioner Response
Because the Site is not designated RSIA, this criterion does not apply.

Metro Staff Analysis
No portion of the site is designated as RSIA. Therefore, this criterion does not apply to the proposed Title 4 Map amendment.

Metro staff believes that this criterion is met.

ANALYSIS/INFORMATION

Known Opposition [identify known opposition to the proposed legislation]
There is no known opposition.

Legal Antecedents [identify legislation related to the proposed legislation, including federal, state, or local law and Metro Code, using appropriate resolution or ordinance numbers, ballot measure numbers, etc.]
Statewide Planning Goals 2 (Land Use Planning) and 9 (Economic Development); Metro Code section 3.07.450 (Employment and Industrial Areas Map).

Anticipated Effects [identify what is expected to occur if the legislation is adopted]
Proposed changes to the City's zoning map and comprehensive plan map would become effective, allowing additional commercial uses in these two areas.

Budget Impacts [identify the cost to implement the legislation]
There is no significant budget impact. Implementation would consist of updating the Employment and Industrial Areas Map.

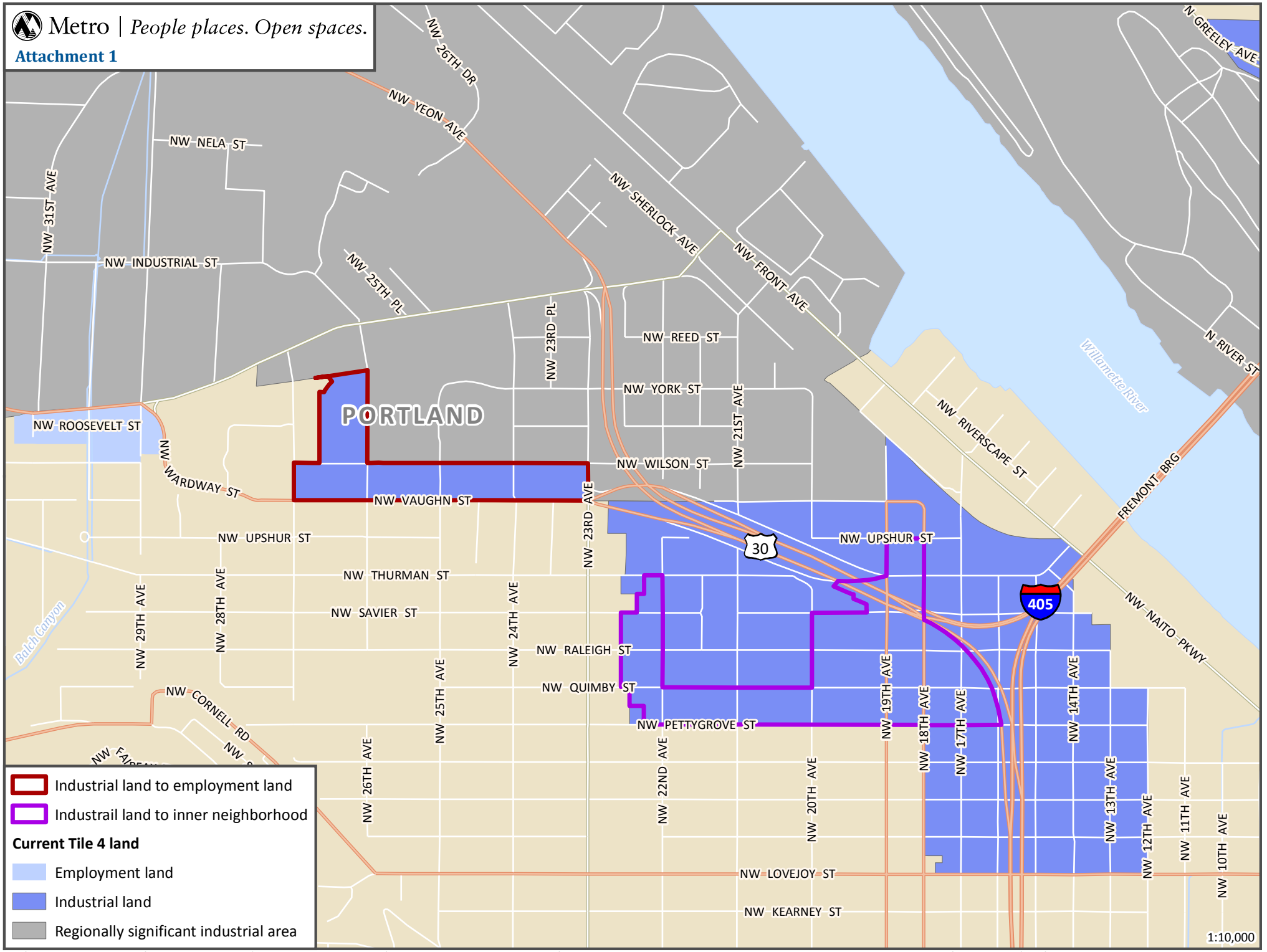
RECOMMENDED ACTION
The petitioner seeks to amend the Title 4 Employment and Industrial Areas Map. Metro Staff believes that the petitioner has provided sufficient evidence to demonstrate that the criteria are satisfied.

Staff recommends, therefore, that the Metro Council approve this ordinance.

ATTACHMENTS
Attachment 1: Map of proposed amendment
Attachment 2: Application from City of Portland requesting Title 4 Map amendment
Attachment 3: Revised traffic analysis from City of Portland (August 6, 2010)
Attachment 4: August 6, 2010 memo from Anthony Butzek to Ted Reid regarding traffic analysis

Metro | *People places. Open spaces.*

Attachment 1



ORDINANCE NO 10-1246
ATTACHMENT 2 TO STAFF REPORT

City of Portland
Application for Amendments to
Metro's Employment and Industrial Areas Map

BACKGROUND INFORMATION

History: The requested changes to Metro's Employment and Industrial Areas Map are based on changes originally adopted by the Portland City Council in 2003 as part of the Northwest District Plan. At that time, Title 4 did not require Metro approval for industrial land map changes.

The Northwest District Plan was appealed to the Land Use Board of Appeals (LUBA). LUBA remanded the plan back to the City for additional information about the impacts of these zone changes on certain transportation facilities. The Portland Bureau of Transportation analyzed the impacts and summarized their findings to specifically address LUBA's remand items.

On June 17, 2010, the Portland City Council re-approved the original Comprehensive Plan and Zone map changes, based on these new findings. The changes approved by City Council will not take effect until Metro has considered our requested amendments to the Title 4 map.

Site Information: We are requesting changes to two areas on Metro's Employment and Industrial Areas Map. These are:

- **Area 1** (north of NW Vaughn between NW 27th and NW 23rd Avenues): 16.9 acres currently designated for industrial will change to employment. This is currently zoned IG1 (General Industrial 1) with a Comprehensive Plan designation of IS (Industrial Sanctuary), and will change to the IG1 zone with a Comprehensive Plan designation of ME (Mixed Employment). This change will allow possible zone map changes, upon further review, to EG (General Employment).
- **Area 2** (north of NW Pettygrove between NW 23rd and NW 16th Avenues): 36.5 acres currently designated for industrial will be removed from the industrial designation. This is currently zoned IG1 with a Comprehensive Plan designation of IS (Industrial Sanctuary) will change to EXd (Central Employment with a Design overlay) zone with a Comprehensive Plan designation of EX.

The sites and the proposed amendments are shown in the attached Exhibit 1.

Proposal Description: The City of Portland requests that Metro's Employment and Industrial Areas Map be amended so the 16.9 acres described as Area 1 above are redesignated from Industrial to Employment. This will allow the area to change from an Industrial Sanctuary (IS) Comprehensive Plan Map designation to Mixed Employment (ME). The Mixed Employment designation would allow potential zone map changes to General Employment. The General Employment zones (EG1 and EG2) permit commercial uses that are more sharply limited or prohibited in Industrial zones, in part due to the requirements of Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan. The General Employment zones also allow a range of institutional uses that are prohibited in the Industrial zones, and limit or prohibit some of the more intense uses allowed in Industrial zones.

The City of Portland also requests that Metro's Employment and Industrial Areas Map be amended so that the 36.5 acres described as Area 2 above is removed from the industrial designation. This will allow the Comprehensive Plan designation to change from Industrial Sanctuary (IS) to Central Employment (EX), and the zoning for the area to change from General Industrial (IG1) to Central Employment with a design overlay zone (EXd). The EX zone allows a variety of residential and commercial uses that are more sharply limited or prohibited in Industrial zones, in part due to the requirements of Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan.

Local Government Statement: This Title 4 map amendment is being requested by the City of Portland. On June 17, 2010, the Portland City Council approved Ordinance No. 183915, amending the Comprehensive Plan and Zoning maps described above. At the time of this application, the City's ordinance has not yet been acknowledged as being in compliance with Statewide Planning Goals pursuant to ORS 197.625(1). However, Portland expects such acknowledgement prior to the hearing before the Metro Council. The amendments to the Comprehensive Plan and Zoning maps will not take effect until Metro Council has considered Portland's requested amendments to the Employment and Industrial Areas Map.

APPLICABLE REVIEW CRITERIA

The criteria for an amendment of the Employment and Industrial Areas Map are contained in Metro Code 3.07.450 H. The criteria (**in bold**) are followed by our response (*in italics*).

A. **These changes to zoning and Comprehensive Plan designations will not reduce the jobs capacity of the city below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan** ***(209,215 jobs)*** *because both changes are to zones or Comprehensive Plan designations that allow a higher employment density than the current zoning/Comprehensive Plan designations. Therefore this criterion is met.*

B. These changes to zoning and Comprehensive Plan designations will not allow uses that reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan (RTP), or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan (OHP) for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses.

Metro's RTP Table 2.4, Regional Mobility Policy designates LOS "E" as the standard for off-peak hours performance. Interstate 405 is classified as a Main Freight Roadway and NW Nicolai Street is identified as a Freight Road Connector. In April 2010 traffic analysis was conducted for three intersections: NW Nicolai at NW Wardway St., NW Nicolai at US 30, and NW Vaughn at NW 23rd Ave. The intersections performed at Level of Service C, B and D, respectively, in 2010. The analysis showed that in 2030, all three intersections would continue to perform at the same level of service with the proposed zoning in place. This is above the LOS E standard criterion required by Title 4 (see Exhibit 2, Traffic Analysis for Title 4).

The three intersections studied in April 2010 also met the volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan (OHP) for state highways. The standard listed in Table 7 is .99 volume/capacity (v/c). According to Exhibit 3, Supplement to Traffic Analysis for Title 4, in 2030, the v/c for the three intersections are .56, .76 and .93.

Therefore this criterion is met.

C These changes to zoning and Comprehensive Plan designations will not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural, and civic services in their market areas *because Area 2 (north of Pettygrove) already has a high concentration of residential and commercial uses; changing the zoning and designation for this area will actually be an expansion of the Central City, reinforcing the role of the Central City as the principal location of retail, cultural, and civic services in the region. Area 1 (directly north of Vaughn) will become a buffer zone between the industrial sanctuary and the Central City.*

Therefore this criterion is met.

D. These changes to zoning and Comprehensive Plan designations will not reduce the integrity or viability of a traded sector cluster of industries *for three reasons:*

First, the resulting reduction in available land for industry-related clusters in the Working Harbor (primarily metals manufacturing and distribution) will be offset by expansion of developable land for office-related clusters in the NW portion of the Central City (particularly creative services and software). This shift is consistent with office growth trends in the River District. Area 2 (north of Pettygrove) has a mix of distribution facilities, residential, retail, and office uses.

Second, the changes will reinforce a functional boundary along the Vaughn corridor between the Working Harbor's Regionally Significant Industrial Area to the north and the higher density, mixed use development in the expanding Central City to the south, encouraging long-term investments in both areas. This Vaughn corridor boundary (Area 1) was jointly developed in the Guild's Lake Industrial Sanctuary Plan (2001 and 2003) and Northwest District Plan.

Third, the change to Area 1 (north of Vaughn) will reinforce the metals cluster, because it will establish a transition buffer between the expanding Central City and a major steel manufacturer on the north side of Vaughn (ESCO), and ease expansion of ESCO's headquarters offices. Having headquarters offices in proximity to the manufacturing functions creates significant efficiencies for companies. Additionally, Area 1 (north of Vaughn) will become a transitional buffer to keep housing and most retail uses from conflicts with the industrial uses, and the buffer will help resist market pressures for residential and retail uses pressing northward.

Therefore this criterion is met.

E. These changes to zoning and Comprehensive Plan designations will not create or worsen a significant imbalance between jobs and housing in a regional market area.

There is currently no significant imbalance. Area 1 (north of Vaughn) is changing from a Comprehensive Plan designation of IS (Industrial Sanctuary) to ME (Mixed Employment). Both designations are designed to foster jobs, and housing is severely limited in both. Although the new designation may result in more jobs in the area, the increase will not be significant enough to cause a significant imbalance in the region.

Area 2 (north of Pettygrove) is changing from the IG1 zone with an IS (Industrial Sanctuary) Comprehensive Plan designation to the EXd zone with an EX (Central Employment) Comprehensive Plan designation. While both the Industrial and Employment zones and designations allow jobs, the EXd zone also allows residential development. Because both uses

are allowed—and because it is a relatively small area—the changes will not be enough to cause a significant imbalance in the region.

Therefore this criterion is met.

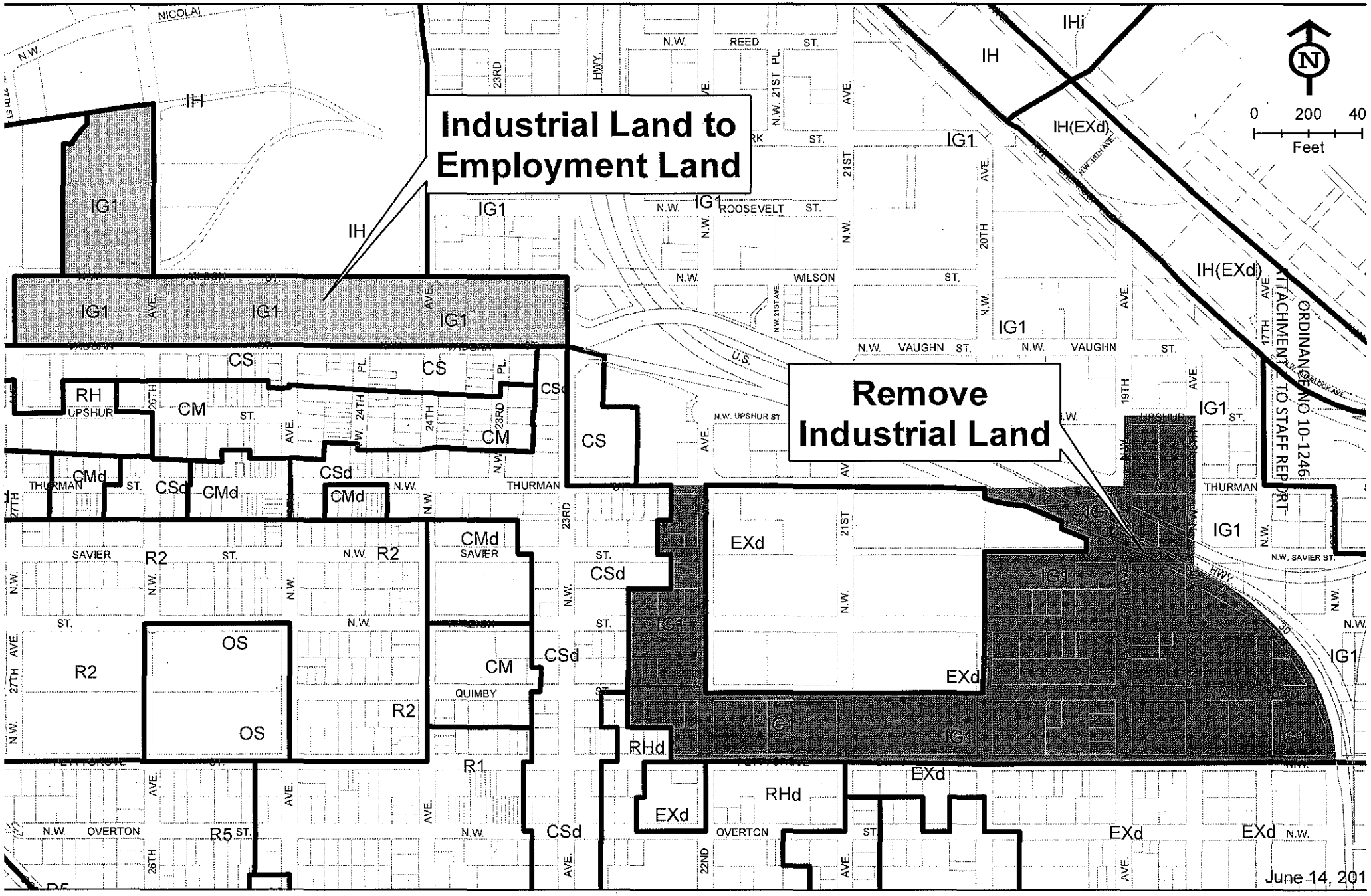
F. These changes to zoning and Comprehensive Plan designations on lands that are designated as Regionally Significant Industrial Areas will not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities.

Both Area 1 (north of Vaughn) and Area 2 (north of Pettygrove) are areas of industrial land where the zone or Comprehensive Plan designation is changing from Industrial to Employment. Neither area is classified by Metro as Regionally Significant.

Therefore this criterion is not applicable.

Exhibit 1

Requested Title 4 Industrial and Employment Land Map Revisions



Traffic analysis for Title 4 Map amendment

(Revised August 6, 2010)

By Ning Zhou, City of Portland

Portland Bureau of Transportation (PBOT) finished the Transportation Planning Analysis two years ago in supporting the NW Remand Plan by Portland Bureau of Planning and Sustainability (BPS).

This summary briefs the findings in responding to the requirements set by Metro's Urban Growth Management Function Plan (UGMFP), Title 4. I-405 is a Main Freight Roadway and NW Nicolai St is a Freight Road Connector in RTP (Regional Transportation Plan). Therefore, an analysis to demonstrate their off-peak hour traffic operational conditions is warranted.

The standards set by the Title 4 (3.07.450 C-4) are listed in Table 1. According to Title 4. 3.07.450 C-4, it is sufficient to satisfy the requirement if NW Remand Plan meets either criterion in Table 1.

Table 1. Off-Peak Performance Standards

		Standards
Criteria 1	Metro RTP Standards[1] in LOS	E
Criteria 2	ODOT 1999 OHP[2] in V/C	0.99

1. Metro's RTP Table 2.4, Regional Mobility Policy, LOS = Level of Service
2. ODOT's 1999 Oregon Highway Plan, Table 7. V/C = Volume / Capacity.

Three intersections are analyzed in this summary:

- NW Nicolai St at NW Wardway St / NW 29th Ave.
- NW Nicolai St at US 30
- NW Vaughn St at NW 23rd Ave / I-405 ramps

Findings

The analysis finds that all three intersections are projected to be continually operated at the conditions meet to better than the standards specified in Title 4 during off-peak hour in the plan year of 2030. No improvements are proposed by the off-peak traffic analysis[1].

Table 2. Off-Peak Operational Conditions in LOS

	2010		2030	
	LOS	V/C	LOS	V/C
NW Nicolai St at NW Wardway St	C	0.44	C	0.56
NW Nicolai St at US 30	B	0.51	B	0.76
NW Vaughn St at NW 23rd Ave	D	0.80	D	0.93

[1] Although a re-configuration design at I-405 off-ramp is proposed by the NW Remand Plan to relieve the future PM peak congestion at the intersection of NW Vaughn St and NW 23rd Ave, no improvement is necessary based on the traffic conditions during noon hours.

Methodology

No off-peak TMC (turning movement counts) were collected two years ago when the NW Remand traffic analysis were performed. For this Title-4 analysis, fresh 2010 off-peak TMCs are collected[2] for evaluating the current conditions. City doesn't have off-peak demand model to produce the future off-peak demands for NW Remand traffic analysis. The future off-peak traffic demands are estimated from the projected future PM demands by the formula:

$$V_{2030offpeak} = V_{2010off\text{-}peak} + \Delta V_{pm2030\text{-}pm2007} \times (V_{offpeak} / V_{pmpeak})$$

Where Δ is the model projected PM traffic growth in turning movements from 2007 to 2030.

Synchro software is used in the operational analysis to derive the LOS and V/C data. All three signals are evaluated as the controller of Actuated & Uncoordinated, which are the specifications of current signal timing plans on the site. All other current signal settings are applied in the analysis. Intersection geometric configurations coded in the model are all as same as current street layouts.

The LOS and V/C readings are extracted from Synchro's HCM (Highway Capacity Manual) Signalized Intersection Capacity Analysis Reports.

Traffic Data

Table 3 lists the 2010 TMCs and projected 2030 traffic demands for the three intersections supporting the analysis.

Table 3. Off-Peak Hour Turning Movement Volumes in the Analysis

		eastbound			westbound			northbound			southbound			total
		L	T	R	L	T	R	L	T	R	L	T	R	
Nicolai / US30	2010	85	15	305	40	25	70	150	885	45	45	985	115	2765
	2030	85	15	345	70	25	70	560	1090	85	45	1270	115	3775
Nicolai / Wardway	2010	5	220	225	20	185	20	210	45	15	25	55	5	1030
	2030	10	345	335	20	310	20	255	45	15	25	55	5	1440
Vaughn / 23rd	2010	0	495	85	165/ 305	475	155	100	65	420	120	60	25	2470
	2030	0	555	85	180/ 360	510	340	100	65	455	155	75	25	2905

It should be noted that the 2010 traffic counts at the intersection of NW Vaughn St and NW 23rd Ave / I-405 Ramp are taken at the hours between 10:00AM to 12:00PM, which doesn't cover the whole length of the required 6-hour from 9:00AM to 3:00PM. However,

[2] NW 29th Ave. n/ NW Nicolai St is closed to through traffic due to constructions currently, and it is a important leg of the intersection. Therefore, 24-hour link counts on all three other major approaching legs are collected and the existing TMC is estimated from the time of day factor and two AM / PM TMCs collected in 2007. The time of the day factor is calculated at approach level, and the formula of (am+pm)/2 is used to distribute the turn movements.

the engineering analysis indicated that the data is sufficient in supporting the planning process:

- It is determined that the peak volume data used in the analysis is consistent with the real peak volume of the required 6-hour time span.
- It is reasonable to state that the turning movement pattern deriving from the data is similar to the traffic patterns of the real peak hour of the 6-hour period.
- It has been demonstrated that the intersection could be operated at the acceptable condition set by Title 4 with additional 5% of the total demands over the projected 2030 volumes.
- It is modeled that the proposed zoning change in NW Remand Plan would only add about 12 vehicles to this intersection during the noon peak hour, which accounts for only about 0.2% of its capacity, and should have little impact to its operation.

Appendix:

a. HCM (highway Capacity Manual) Reports from Synchro for the three intersections, 2010 and 2030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b. 2010 off-peak TMCs on the two intersections


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c. 24-hour counts on legs of the intersection of Nicolai St at NW Wardway St.


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d. Detail engineering analysis in supporting the use of TMC at the intersection of NW Vaughn St and NW 23rd Ave.


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Supporting Analysis

for the intersection of NW Vaughn St and NW 23rd Ave.
(draft, 8/6/2010)
Ning Zhou, PE., PTOE

For conducting the Title 4 traffic analysis for NW Remand study, City has collected TMC (Turning Movement Count) at the intersection of NW Vaughn St and NW 23rd Ave. between 10:00AM to 12:00PM in April, 2010.

Apparently the TMC didn't cover the whole length of the required 6-hour span from 9:00AM to 3:00PM. Since Broadway Bridge and North Pearl area are currently under construction and it will not re-open to traffic until September, it is impossible to simply re-collect the TMC at the intersection to satisfy the Title 4 requirement.

However, the detailed traffic engineering studies indicate that the current counts are sufficient in supporting the planning application, and should be good for the Title 4 requirement. Followings are the findings.

a. It is determined that the traffic at the site is relatively constant from 9:00AM – 3:00PM. City doesn't have the 6-hour turning count for this intersection, but the link 24-hour count from adjacent street (NW Vaughn St e/ NW 25th St) shows that the traffic volumes used in the analysis (11:00-12:00) is only 2% off the middle-day real peak. There is no noticeable trend that the traffic is tend to increase with the time moves before it reaches PM rush hours, and the 2% difference is well within the hourly fluctuation range of the normal hourly traffic.

Table 1. Middle day traffic counts on NW Vaughn St e/ 25th Ave (2006)

	Volumes	Peak	% of peak
9 - 10AM	1,031		
10 – 11AM	950		
11AM – 12PM	1,103		98%
12 – 1PM	1,076		
1 – 2PM	1,129	Peak	
2 – 3PM	1,106		

*The peak hour volume might be varied slightly if use 15-minute interval method.

b. It is reasonable to assume the analyzed peak hour traffic hold the same traffic pattern as the real peak hour of the 6-hour middle-day span. Without the 6-hour turning movement count, it is hard to declare that for sure. But by the same token, there is no reason to suspect the traffic pattern at the intersection during the middle day hours would significantly shift away from its 11:00-12:00 traffic. This intersection connects neighborhood collectors with a freeway ramp, its traffic pattern during the whole middle day hours should be relatively stabled. Table 2 lists the traffic patterns of AM, PM and off peak hours of this intersection. No noticeable traffic pattern changes between the counted 2 middle day hours either, see Table 3.

Table 2. The distribution pattern of approach traffic at the intersection

	EB %	WB %	NB %	SB %
AM Peak	25	54	17	4
Off Peak	23	45	24	8
PM Peak	25	38	28	8

Table 3. Traffic pattern comparison between the two surveyed middle-day hours at the intersection

	EB			WB				NB			SB		
	L	T	R	U	L	T	R	L	T	R	L	T	R
10:00-11:00		19%	3%	8%	13%	20%	6%	3%	3%	17%	5%	2%	1%
11:00-12:00		20%	3%	7%	12%	19%	6%	4%	3%	17%	5%	2%	1%

c. The Title 4's standards for approval are LOS E or V/C of 0.99 for this intersection. The analysis states that the intersection would be operated at LOS D or V/C = 0.93 in planning year of 2030, which is much lower than the approval criteria. The volumes used in 2030 analysis equal to about 18% growth from today in terms of total approach volumes. The test model run demonstrates that the intersection would be operated at an accepted condition even with another 5% additional traffic growth to every movement (LOS D and V/C 0.94). It is safe to assume that the 5% additional traffic will compensate well the impacts or doubts resulting from the imperfect traffic counts.

d. It is estimated the proposed land use from NW Remand would add about 12 vehicles to this intersection (all 4-approaches) during 2030 noon peak hour. The capacity of the intersection is modeled at 5500+ based on current street layout and signal timing plan. The 12 additional vehicles represent only 0.2% of its total approach capacity. Therefore, the additional traffic from the proposed NW Remand project would have little to none effect to the operation condition of the intersection in projected 2030 noon peak hour, in either terms of total approach volumes or in individual movement traffic.

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	0.99			0.88		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.99		
Satd. Flow (prot)	1770	1863	1583			1770	1835			1634		
Flt Permitted	0.55	1.00	1.00			0.95	1.00			0.96		
Satd. Flow (perm)	1024	1863	1583			1770	1835			1580		
Volume (vph)	5	220	225	5	5	20	185	20	3	0	5	13
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	239	245	5	5	22	201	22	3	0	5	14
RTOR Reduction (vph)	0	0	0	0	0	0	3	0	0	12	0	0
Lane Group Flow (vph)	5	239	250	0	0	27	220	0	0	10	0	0
Turn Type	pm+pt		custom		Prot	Prot			Perm			
Protected Phases	1	3 6	6 7		5	5	2 3			4		
Permitted Phases	3 6								4			
Actuated Green, G (s)	35.9	34.3	36.6			2.0	32.5			8.5		
Effective Green, g (s)	36.1	33.3	38.4			1.0	31.5			8.7		
Actuated g/C Ratio	0.49	0.45	0.52			0.01	0.43			0.12		
Clearance Time (s)	5.2					3.0				4.2		
Vehicle Extension (s)	3.0					3.0				3.0		
Lane Grp Cap (vph)	531	844	827			24	786			187		
v/s Ratio Prot	c0.00	c0.13	c0.16			c0.02	0.12					
v/s Ratio Perm	0.00									0.01		
v/c Ratio	0.01	0.28	0.30			1.12	0.28			0.05		
Uniform Delay, d1	9.6	12.6	9.9			36.2	13.6			28.7		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	0.0	0.2	0.2			225.0	0.2			0.1		
Delay (s)	9.6	12.8	10.2			261.2	13.8			28.9		
Level of Service	A	B	B			F	B			C		
Approach Delay (s)		11.4					40.5			28.9		
Approach LOS		B					D			C		

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL2	SBL	SBT	SBR	NWL	NWR	NWR2
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00
Frt			0.98		1.00	0.85	0.85
Flt Protected			0.96		0.95	1.00	1.00
Satd. Flow (prot)			1758		1770	1583	1583
Flt Permitted			0.74		0.95	1.00	1.00
Satd. Flow (perm)			1351		1770	1583	1583
Volume (vph)	25	55	1	10	210	45	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	60	1	11	228	49	16
RTOR Reduction (vph)	0	0	5	0	0	0	13
Lane Group Flow (vph)	0	0	94	0	228	49	3
Turn Type	Perm	Perm				Prot	Prot
Protected Phases			4		7	7	7
Permitted Phases	4	4					
Actuated Green, G (s)			8.5		13.3	13.3	13.3
Effective Green, g (s)			8.7		14.5	14.5	14.5
Actuated g/C Ratio			0.12		0.20	0.20	0.20
Clearance Time (s)			4.2		5.2	5.2	5.2
Vehicle Extension (s)			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)			160		349	312	312
v/s Ratio Prot					c0.13	0.03	0.00
v/s Ratio Perm			c0.07				
v/c Ratio			0.59		0.65	0.16	0.01
Uniform Delay, d1			30.7		27.2	24.4	23.7
Progression Factor			1.00		1.00	1.00	1.00
Incremental Delay, d2			5.4		4.3	0.2	0.0
Delay (s)			36.1		31.5	24.7	23.7
Level of Service			D		C	C	C
Approach Delay (s)			36.1		30.0		
Approach LOS			D		C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		0.99	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.95		0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1770		1682		3433	5042		1770	3539	1549
Flt Permitted		0.60	1.00		0.88		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1102	1770		1495		3433	5042		1770	3539	1549
Volume (vph)	85	15	305	40	25	70	150	885	45	45	985	115
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	16	321	42	26	74	158	932	47	47	1037	121
RTOR Reduction (vph)	0	0	0	0	48	0	0	5	0	0	0	57
Lane Group Flow (vph)	0	105	321	0	94	0	158	974	0	47	1037	64
Confl. Peds. (#/hr)	4					4	8		4	4		8
Turn Type	Perm		custom	Perm			Prot			Prot		custom
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		5 6 8	4								6
Actuated Green, G (s)		12.2	81.2		12.2		14.4	40.8		11.9	39.4	40.8
Effective Green, g (s)		13.8	81.2		13.8		14.5	42.8		12.6	40.9	42.8
Actuated g/C Ratio		0.17	1.00		0.17		0.18	0.53		0.16	0.50	0.53
Clearance Time (s)		5.6			5.6		4.1	6.0		4.7	5.5	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		187	1770		254		613	2658		275	1783	816
v/s Ratio Prot							c0.05	0.19		0.03	c0.29	
v/s Ratio Perm		c0.10	c0.18		0.06							0.04
v/c Ratio		0.56	0.18		0.37		0.26	0.37		0.17	0.58	0.08
Uniform Delay, d1		30.9	0.0		29.8		28.7	11.3		29.8	14.1	9.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		3.8	0.0		0.9		1.0	0.4		1.3	1.4	0.2
Delay (s)		34.7	0.0		30.8		29.7	11.6		31.1	15.5	9.7
Level of Service		C	A		C		C	B		C	B	A
Approach Delay (s)		8.6			30.8			14.2			15.6	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.98			1.00	1.00	0.85	1.00	0.89	0.85	1.00	0.96
Flt Protected		1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3430			1770	3539	1583	1770	1570	1504	1770	1746
Flt Permitted		1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3430			1770	3539	1583	1770	1570	1504	1770	1746
Volume (vph)	0	495	85	165	305	475	155	100	65	420	120	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	521	89	174	321	500	163	105	68	442	126	63
RTOR Reduction (vph)	0	12	0	0	0	0	69	0	0	0	0	13
Lane Group Flow (vph)	0	598	0	0	495	500	94	105	276	234	126	76
Confl. Peds. (#/hr)	1		16		16		1	40				
Turn Type				Prot	Prot		Prot	Prot		Prot	Prot	
Protected Phases		2		1	1	6	6	3	8	8	7	4
Permitted Phases												
Actuated Green, G (s)		20.6			29.5	54.1	54.1	8.2	20.0	20.0	7.7	19.5
Effective Green, g (s)		20.6			29.5	54.1	54.1	8.2	20.0	20.0	7.7	19.5
Actuated g/C Ratio		0.22			0.31	0.58	0.58	0.09	0.21	0.21	0.08	0.21
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		753			557	2041	913	155	335	321	145	363
v/s Ratio Prot		c0.17			c0.28	0.14	0.06	0.06	c0.18	0.16	c0.07	0.04
v/s Ratio Perm												
v/c Ratio		0.79			0.89	0.24	0.10	0.68	0.82	0.73	0.87	0.21
Uniform Delay, d1		34.6			30.6	9.8	8.9	41.5	35.2	34.4	42.6	30.8
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.8			15.8	0.1	0.0	11.1	15.0	8.0	38.6	0.3
Delay (s)		40.4			46.4	9.8	9.0	52.7	50.3	42.4	81.2	31.0
Level of Service		D			D	A	A	D	D	D	F	C
Approach Delay (s)		40.4				25.4			47.7			60.4
Approach LOS		D				C			D			E

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	25
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	26
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	40
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	0.99			0.88		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.99		
Satd. Flow (prot)	1770	1863	1583			1770	1846			1634		
Flt Permitted	0.47	1.00	1.00			0.95	1.00			0.96		
Satd. Flow (perm)	866	1863	1583			1770	1846			1578		
Volume (vph)	10	345	335	5	5	20	310	20	3	0	5	13
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	375	364	5	5	22	337	22	3	0	5	14
RTOR Reduction (vph)	0	0	1	0	0	0	2	0	0	12	0	0
Lane Group Flow (vph)	11	375	368	0	0	27	357	0	0	10	0	0
Turn Type	pm+pt		custom		Prot	Prot			Perm			
Protected Phases	1	3 6	6 7		5	5	2 3			4		
Permitted Phases	3 6								4			
Actuated Green, G (s)	32.9	32.4	34.2			2.0	33.9			8.6		
Effective Green, g (s)	31.4	31.4	36.0			1.0	32.9			8.8		
Actuated g/C Ratio	0.43	0.43	0.49			0.01	0.45			0.12		
Clearance Time (s)	3.0					3.0				4.2		
Vehicle Extension (s)	3.0					3.0				3.0		
Lane Grp Cap (vph)	368	793	772			24	823			188		
v/s Ratio Prot		c0.20	0.23			c0.02	0.19					
v/s Ratio Perm	0.01									0.01		
v/c Ratio	0.03	0.47	0.48			1.12	0.43			0.05		
Uniform Delay, d1	12.3	15.2	12.6			36.4	14.0			28.8		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	0.0	0.4	0.5			225.0	0.4			0.1		
Delay (s)	12.4	15.7	13.1			261.4	14.4			28.9		
Level of Service	B	B	B			F	B			C		
Approach Delay (s)		14.4					31.7			28.9		
Approach LOS		B					C			C		

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL2	SBL	SBT	SBR	NWL	NWR	NWR2
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00
Frt			0.98		1.00	0.85	0.85
Flt Protected			0.96		0.95	1.00	1.00
Satd. Flow (prot)			1758		1770	1583	1583
Flt Permitted			0.74		0.95	1.00	1.00
Satd. Flow (perm)			1351		1770	1583	1583
Volume (vph)	25	55	1	10	255	45	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	60	1	11	277	49	16
RTOR Reduction (vph)	0	0	5	0	0	0	12
Lane Group Flow (vph)	0	0	94	0	277	49	4
Turn Type	Perm	Perm				Prot	Prot
Protected Phases			4		7	7	7
Permitted Phases	4	4					
Actuated Green, G (s)			8.6		15.4	15.4	15.4
Effective Green, g (s)			8.8		16.6	16.6	16.6
Actuated g/C Ratio			0.12		0.22	0.22	0.22
Clearance Time (s)			4.2		5.2	5.2	5.2
Vehicle Extension (s)			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)			161		398	356	356
v/s Ratio Prot					c0.16	0.03	0.00
v/s Ratio Perm			c0.07				
v/c Ratio			0.58		0.70	0.14	0.01
Uniform Delay, d1			30.8		26.3	22.9	22.2
Progression Factor			1.00		1.00	1.00	1.00
Incremental Delay, d2			5.3		5.2	0.2	0.0
Delay (s)			36.0		31.5	23.1	22.2
Level of Service			D		C	C	C
Approach Delay (s)			36.0		29.9		
Approach LOS			D		C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.95		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1787	1770		1698		3433	5020		1770	3539	1548
Flt Permitted		0.56	1.00		0.78		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1051	1770		1351		3433	5020		1770	3539	1548
Volume (vph)	85	15	345	70	25	70	560	1090	85	45	1270	115
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	16	363	74	26	74	589	1147	89	47	1337	121
RTOR Reduction (vph)	0	0	0	0	30	0	0	9	0	0	0	45
Lane Group Flow (vph)	0	105	363	0	144	0	589	1227	0	47	1337	76
Confl. Peds. (#/hr)	4					4	8		4	4		8
Turn Type	Perm		custom	Perm			Prot			Prot		custom
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		5 6 8	4								6
Actuated Green, G (s)		12.3	88.0		12.3		19.9	53.5		5.9	40.6	53.5
Effective Green, g (s)		13.9	88.0		13.9		20.0	55.5		6.6	42.1	55.5
Actuated g/C Ratio		0.16	1.00		0.16		0.23	0.63		0.08	0.48	0.63
Clearance Time (s)		5.6			5.6		4.1	6.0		4.7	5.5	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		166	1770		213		780	3166		133	1693	976
v/s Ratio Prot							c0.17	0.24		0.03	c0.38	
v/s Ratio Perm		0.10	0.21		c0.11							0.05
v/c Ratio		0.63	0.21		0.67		0.76	0.39		0.35	0.79	0.08
Uniform Delay, d1		34.7	0.0		34.9		31.7	7.9		38.7	19.2	6.3
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		7.6	0.1		8.2		6.7	0.4		7.2	3.8	0.2
Delay (s)		42.3	0.1		43.1		38.4	8.3		45.9	23.1	6.5
Level of Service		D	A		D		D	A		D	C	A
Approach Delay (s)		9.5			43.1			18.0			22.5	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95			1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.98			1.00	1.00	0.85	1.00	0.88	0.85	1.00	0.96
Flt Protected		1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3437			1770	3539	1583	1770	1565	1504	1770	1760
Flt Permitted		1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3437			1770	3539	1583	1770	1565	1504	1770	1760
Volume (vph)	0	555	85	180	360	510	340	100	65	455	155	75
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	584	89	189	379	537	358	105	68	479	163	79
RTOR Reduction (vph)	0	11	0	0	0	0	151	0	0	0	0	10
Lane Group Flow (vph)	0	662	0	0	568	537	207	105	296	251	163	95
Confl. Peds. (#/hr)	1		16		16		1	40				
Turn Type				Prot	Prot		Prot	Prot		Prot	Prot	
Protected Phases		2		1	1	6	6	3	8	8	7	4
Permitted Phases												
Actuated Green, G (s)		23.0			35.7	62.7	62.7	9.3	22.5	22.5	11.0	24.2
Effective Green, g (s)		23.0			35.7	62.7	62.7	9.3	22.5	22.5	11.0	24.2
Actuated g/C Ratio		0.21			0.33	0.58	0.58	0.09	0.21	0.21	0.10	0.22
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		731			584	2051	917	152	325	313	180	394
v/s Ratio Prot		c0.19			c0.32	0.15	0.13	0.06	c0.19	0.17	c0.09	0.05
v/s Ratio Perm												
v/c Ratio		0.91			0.97	0.26	0.23	0.69	0.91	0.80	0.91	0.24
Uniform Delay, d1		41.5			35.8	11.3	11.0	48.1	41.9	40.7	48.1	34.5
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		14.7			30.2	0.1	0.1	12.7	28.4	13.7	41.0	0.3
Delay (s)		56.3			66.0	11.3	11.1	60.8	70.2	54.5	89.1	34.8
Level of Service		E			E	B	B	E	E	D	F	C
Approach Delay (s)		56.3				32.5			62.6			67.8
Approach LOS		E				C			E			E

Intersection Summary			
HCM Average Control Delay	47.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Volume (vph)	25
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	26
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	40
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

City of Portland

Office of Transportation
1120 SW 5th Ave, Rm 800
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Cldy 55f By: CDB/RC For: Zhou

NW NICOLAI ST @ NW YEON AVE/I405 RAMPS

Groups Printed- VEHS PEDS

	NW YEON AVE Southbound					NW NICOLAI ST Westbound					NW YEON AVE/I405 RAMP Northbound					NW NICOLAI ST Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
11:00	8	216	17	0	241	14	7	8	0	29	46	201	12	0	259	16	7	68	0	91	0	620	620
11:15	9	230	21	0	260	17	3	9	0	29	40	225	18	0	283	7	10	68	0	85	0	657	657
11:30	5	239	35	0	279	24	12	8	0	44	39	182	15	0	236	19	9	72	1	100	1	659	660
11:45	9	264	20	0	293	17	12	6	0	35	31	250	14	0	295	15	3	76	0	94	0	717	717
Total	31	949	93	0	1073	72	34	31	0	137	156	858	59	0	1073	57	29	284	1	370	1	2653	2654
12:00	7	231	22	0	260	13	8	17	0	38	41	201	6	0	248	20	3	96	0	119	0	665	665
12:15	12	248	31	0	291	8	2	26	0	36	45	216	13	0	274	24	7	72	0	103	0	704	704
12:30	17	243	41	0	301	3	1	21	0	25	35	219	12	0	266	24	4	62	0	90	0	682	682
12:45	13	245	19	0	277	9	6	21	0	36	52	230	19	0	301	24	3	51	0	78	0	692	692
Total	49	967	113	0	1129	33	17	85	0	135	173	866	50	0	1089	92	17	281	0	390	0	2743	2743
Grand Total	80	1916	206	0	2202	105	51	116	0	272	329	1724	109	0	2162	149	46	565	1	760	1	5396	5397
Apprch %	3.6	87	9.4			38.6	18.8	42.6			15.2	79.7	5			19.6	6.1	74.3					
Total %	1.5	35.5	3.8		40.8	1.9	0.9	2.1		5	6.1	31.9	2		40.1	2.8	0.9	10.5		14.1	0	100	

NOTE: NW 29TH AVE CLOSED YEON TO NICOLAI

City of Portland

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Cldy 55f By: CDB/RC For: Zhou

NW NICOLAI ST @ NW YEON AVE/I405 RAMPS

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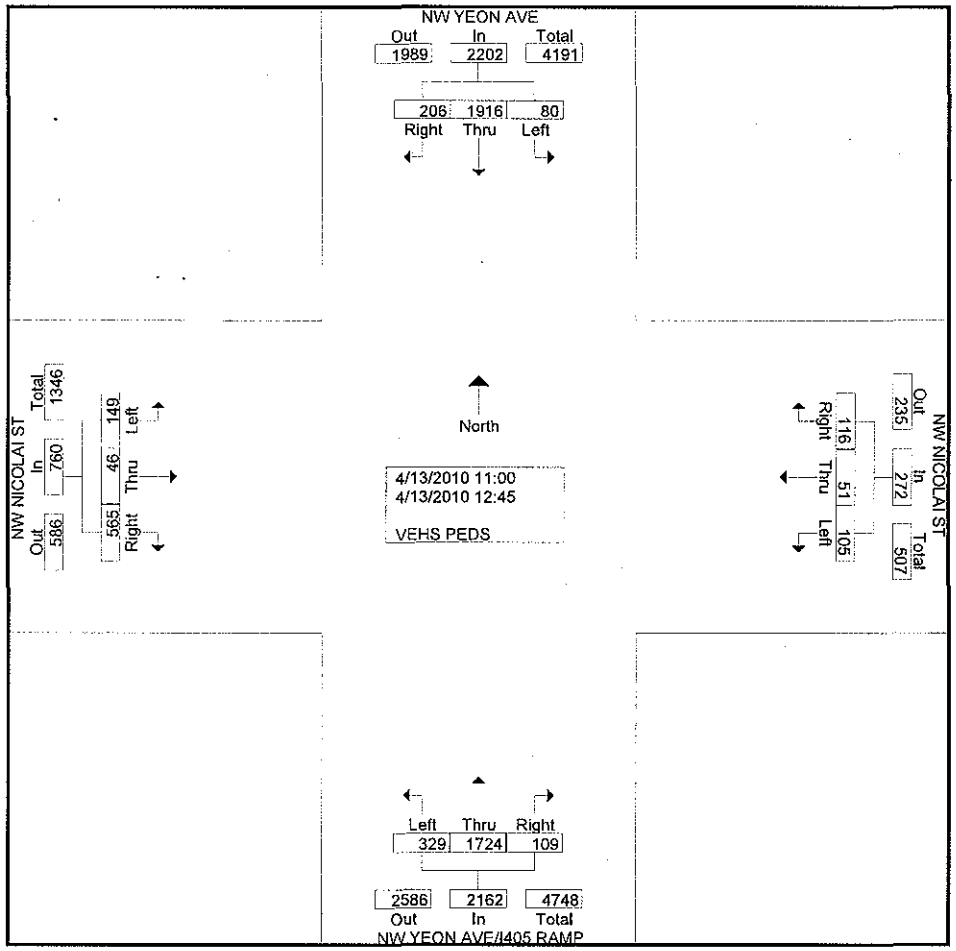

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NW NICOLAI ST @ NW YEON AVE/I405 RAMPS

	NW YEON AVE Southbound				NW NICOLAI ST Westbound				NW YEON AVE/I405 RAMP Northbound				NW NICOLAI ST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 12:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45																	
11:45	9	**264**	20	293	**17**	**12**	6	35	31	**250**	**14**	**295**	15	3	76	94	**717**
12:00	7	231	22	260	13	8	17	**38**	41	201	6	248	20	3	**96**	**119**	665
12:15	12	248	31	291	8	2	**26**	36	**45**	216	13	274	**24**	**7**	72	103	704
12:30	**17**	243	**41**	**301**	3	1	21	25	35	219	12	266	24	4	62	90	682
Total Volume	45	986	114	1145	41	23	70	134	152	886	45	1083	83	17	306	406	2768
% App. Total	3.9	86.1	10		30.6	17.2	52.2		14	81.8	4.2		20.4	4.2	75.4		
PHF	.662	.934	.695	.951	.603	.479	.673	.882	.844	.886	.804	.918	.865	.607	.797	.853	.965

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NW 23RD AVE/VAUGHN ST/I405 NB EX

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Site Code : 00000000
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Groups Printed- VEHS PEDS

	NW 23RD AVE Southbound					I-405 NB EX Southwestbound						NW VAUGHN ST Westbound		NW 23RD AVE Northbound					NW VAUGHN ST Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00	23	6	7	0	36	43	87	118	28	0	276	0	0	8	10	88	0	106	0	107	12	4	123	0	541	541
10:15	34	17	5	1	56	41	77	120	39	0	277	0	0	24	15	130	0	169	0	96	10	0	106	1	608	609
10:30	28	15	6	1	49	51	77	106	36	0	270	0	0	20	13	95	0	128	0	112	21	1	134	1	581	582
10:45	37	13	11	0	61	48	68	132	35	0	283	0	0	22	22	89	0	133	0	128	18	7	153	0	630	630
Total	122	51	29	2	202	183	309	476	138	0	1106	0	0	74	60	402	0	536	0	443	61	12	516	2	2360	2362
11:00	24	15	10	4	49	44	88	116	31	0	279	0	0	23	14	102	0	139	0	135	21	3	159	4	626	630
11:15	26	19	2	2	47	39	51	126	47	0	263	0	0	22	17	111	0	150	0	131	17	5	153	2	613	615
11:30	32	14	6	2	52	39	71	120	38	0	268	0	0	31	12	93	0	136	1	115	28	14	158	2	614	616
11:45	38	11	7	0	56	44	96	114	38	0	292	0	0	25	20	114	0	159	0	113	17	0	130	0	637	637
Total	120	59	25	8	204	166	306	476	154	0	1102	0	0	101	63	420	0	584	1	494	83	22	600	8	2490	2498
Grand Total	242	110	54	10	406	349	615	952	292	0	2208	0	0	175	123	822	0	1120	1	937	144	34	1116	10	4850	4860
Apprch %	59.6	27.1	13.3			15.8	27.9	43.1	13.2	0		0		15.6	11	73.4	0		0.1	84	12.9	3				
Total %	5	2.3	1.1		8.4	7.2	12.7	19.6	6	0	45.5	0	0	3.6	2.5	16.9	0	23.1	0	19.3	3	0.7	23	0.2	99.8	

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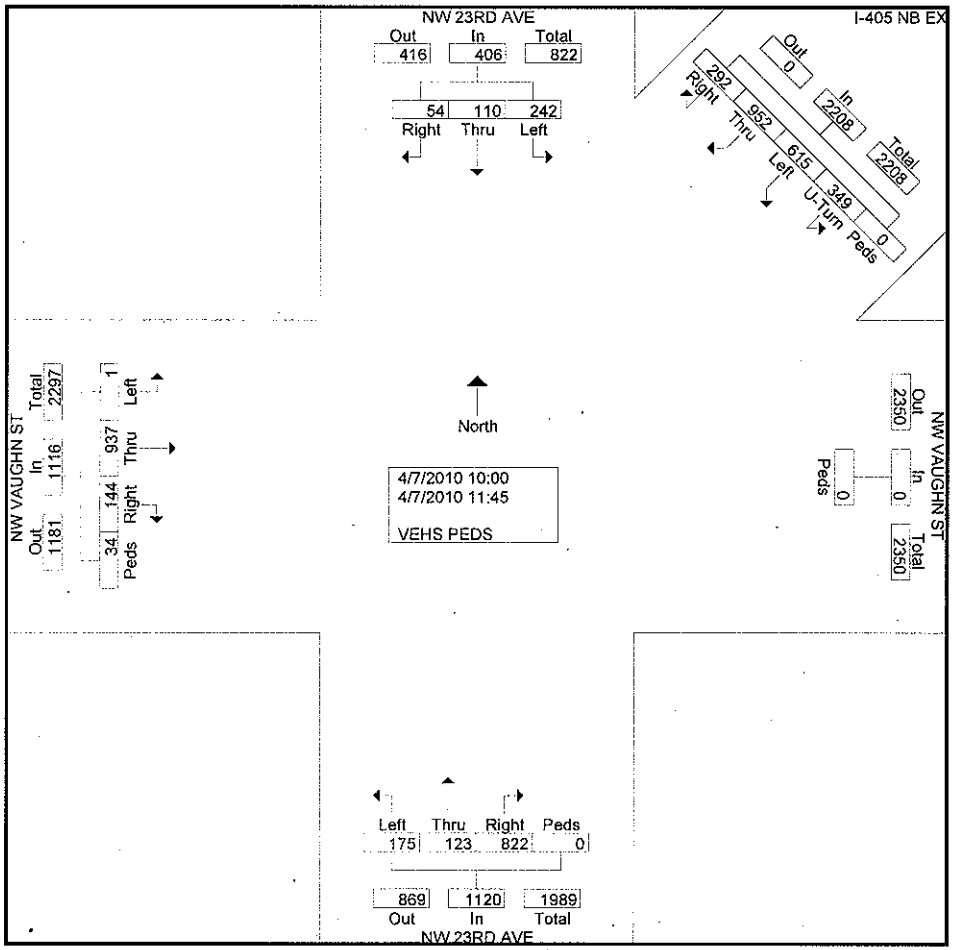

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NW 23RD AVE/VAUGHN ST/I405 NB EX

	NW 23RD AVE Southbound					I-405 NB EX Southwestbound					NW VAUGHN ST Westbound		NW 23RD AVE Northbound					NW VAUGHN ST Eastbound					
Start Time	Left	Thru	Right	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 to 11:45 - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 11:00																							
11:00	24	15	**10**	49	**44**	88	116	31	0	279	0	0	23	14	102	0	139	0	**135**	21	3	**159**	626
11:15	26	**19**	2	47	39	51	**126**	**47**	0	263	0	0	22	17	111	0	150	0	131	17	5	153	613
11:30	32	14	6	52	39	71	120	38	0	268	0	0	**31**	12	93	0	136	**1**	115	**28**	**14**	158	614
11:45	**38**	11	7	**56**	44	**96**	114	38	0	**292**	0	0	25	**20**	**114**	0	**159**	0	113	17	0	130	**637**
Total Volume	120	59	25	204	166	306	476	154	0	1102	0	0	101	63	420	0	584	1	494	83	22	600	2490
% App. Total	58.8	28.9	12.3		15.1	27.8	43.2	14	0		0		17.3	10.8	71.9	0		0.2	82.3	13.8	3.7		
PHF	.789	.776	.625	.911	.943	.797	.944	.819	.000	.943	.000	.000	.815	.788	.921	.000	.918	.250	.915	.741	.393	.943	.977

CITY OF PORTLAND OFFICE OF TRANSPORTATION

Traffic Volume Report

LOCATION

Location: NW WARDWAY ST E of 29TH AVE / NICOLAI ST

Bound: N **Channels:** 1

Date: From 4/12/2010 10:45:00 AM (MON) to 4/14/2010 12:30:00 PM (WED)

CountID: 10041221.VL1

NOTES

Excpt Type: Obstruction

Conditions:

Comment: **NW 29TH AVE CLOSED N/NICOLAI

Count Loc: NW WARD WAY S/NW NICOLAI ST

SUMMARY DATA

	AM	PM	Daily
Total Volume:	1520	2125	3645
Peak Hour Volume:	269	302	302
Peak Hour Start:	6:45	16:15	16:15
Peak Hour Factor:	0.862	0.878	

INTERVAL DATA

Hour	Min: 00-15	Min: 16-30	Min: 31-45	Min: 45-60	Total
0	4	8	5	4	21
1	2	1	6	4	13
2	5	5	7	3	20
3	4	6	2	3	15
4	6	4	10	15	35
5	16	20	27	38	101
6	40	40	51	68	199
7	55	68	78	65	266
8	52	50	62	56	220
9	54	56	55	38	203
10	55	50	48	52	205
11	45	59	58	60	222
12	58	67	73	69	267
13	84	59	68	61	272
14	67	61	64	60	252
15	61	72	80	64	277
16	68	66	66	86	286
17	84	66	64	59	273
18	46	46	38	40	170
19	41	24	16	26	107
20	19	14	17	23	73
21	16	14	14	18	62
22	15	11	15	12	53
23	10	8	8	7	33

CITY OF PORTLAND OFFICE OF TRANSPORTATION

Traffic Volume Report

LOCATION

Location: NW NICOLAI ST W of 29TH AVE / WARDWAY ST

Bound: E **Channels:** 1

Date: From 4/12/2010 10:30:00 AM (MON) to 4/14/2010 12:30:00 PM (WED)

CountID: 10041222.VL1

NOTES

Excpt Type: Obstruction

Conditions:

Comment: **NW 29TH AVE CLOSED N/NICOLAI

Count Loc: NW NICOLAI ST W/NW WARD WAY

SUMMARY DATA

	AM	PM	Daily
Total Volume:	2745	3105	5850
Peak Hour Volume:	582	526	582
Peak Hour Start:	7:30	16:0	7:30
Peak Hour Factor:	0.887	0.854	

INTERVAL DATA

Hour	Min: 00-15	Min: 16-30	Min: 31-45	Min: 45-60	Total
0	9	9	11	10	39
1	9	5	6	7	27
2	7	6	13	10	36
3	9	23	5	9	46
4	11	12	14	16	53
5	19	32	43	47	141
6	39	58	74	108	279
7	84	109	164	152	509
8	122	144	118	101	485
9	107	83	87	94	371
10	86	67	100	79	332
11	96	102	120	109	427
12	119	98	108	123	448
13	101	107	97	111	416
14	111	85	97	87	380
15	98	99	125	89	411
16	147	120	154	105	526
17	147	96	79	67	389
18	57	54	45	45	201
19	33	38	30	17	118
20	21	25	20	15	81
21	20	8	12	12	52
22	15	14	10	12	51
23	7	11	4	10	32

CITY OF PORTLAND OFFICE OF TRANSPORTATION

Traffic Volume Report

LOCATION

Location: NW NICOLAI ST E of 29TH AVE / WARDWAY ST

Bound: W **Channels:** 1

Date: From 4/12/2010 10:30:00 AM (MON) to 4/14/2010 12:15:00 PM (WED)

CountID: 10041227.VL1

NOTES

Excpt Type: Obstruction

Conditions:

Comment: **NW 29TH AVE CLOSED N/NICOLAI

Count Loc: NW NICOLAI ST E/NW WARD WAY

SUMMARY DATA

	AM	PM	Daily
Total Volume:	1506	1316	2822
Peak Hour Volume:	273	231	273
Peak Hour Start:	7:0	12:45	7:0
Peak Hour Factor:	0.822	0.902	

INTERVAL DATA

Hour	Min: 00-15	Min: 16-30	Min: 31-45	Min: 45-60	Total
0	7	7	3	8	25
1	6	7	12	3	28
2	9	6	4	4	23
3	10	1	7	7	25
4	5	14	12	12	43
5	10	15	21	36	82
6	33	35	60	67	195
7	56	83	56	78	273
8	53	62	54	47	216
9	50	53	52	54	209
10	44	51	47	50	192
11	56	41	57	41	195
12	67	52	41	62	222
13	43	62	64	51	220
14	50	49	52	47	198
15	40	36	54	40	170
16	45	32	38	32	147
17	52	37	34	21	144
18	19	17	9	11	56
19	8	8	11	6	33
20	5	7	12	10	34
21	10	9	9	7	35
22	8	8	8	8	32
23	9	4	7	5	25

ORDINANCE 10-1246
ATTACHMENT 4 TO STAFF REPORT

600 NE Grand Ave.
Portland, OR 97232-2736
503-797-1700
503-797-1804 TDD
503-797-1797 fax

www.oregonmetro.gov

Metro | *Memo*

Date: Friday, August 6, 2010
To: Ted Reid, Regional Planner
From: Anthony Butzek, Metro Transportation Engineer; PE, PTOE
Subject: Portland Title 4 Amendment – NW Remand (internal)

I am able to sign off on Portland's compliance with Title 4 pertaining to traffic and freight movement.

Title 4 requires that the proposed change*… "would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan ("RTP"), or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan ("OHP") for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses."*

The applicable freight routes in the vicinity are NW Nicolai Street and US 30. Specifically, Metro asked the City to review the following intersections for compliance with Title 4:

- NW Nicolai St. at US 30
- NW Nicolai St. at NW Wardway St. / NW 29th Ave.
- NW Vaughn St. at NW 23rd Ave. / US 30 (I-405) ramps

The City has demonstrated to a reasonable extent that the proposed changes would not reduce off-peak performance on either facility below standards contained in the RTP or OHP. The City's analysis was for year 2030 conditions.

The City produced a Traffic Analysis as a technical memorandum, which is available for review. As documented in the analysis, the proposed land use changes have a negligible off-peak traffic impact.