BEFORE THE BOARD OF COUNTY COMMISSIONERS
OF LEWIS COUNTY, WASHINGTON

IN THE MATTER OF:
Approving an interlocal agreement between Thurston Regional Planning Council (TRPC) and Lewis County regarding travel demand modeling work by TRPC personnel and authorizing signatures thereon.

RESOLUTION NO. 16-173

WHEREAS, RCW 39.34.080 authorizes public agencies to perform governmental services, activities, or undertakings which each public agency entering into the contract is authorized by law to perform, provided such contract shall be authorized by the governing body of each party to the contract; and

WHEREAS, Lewis County has a need to complete traffic demand modeling, but lacks the manpower and expertise to complete the work and is requesting to enter into an interlocal agreement for TRPC to perform the work; and

WHEREAS, the Public Works Director/County Engineer has reviewed an interlocal agreement and proposal (Exhibit A) between TRPC and Lewis County regarding travel demand modeling work, at a cost of $73,473.00, and recommends that the Board of County Commissioners (BOCC) approve the interlocal agreement between TRPC and Lewis County regarding travel demand modeling work to be performed by TRPC.

NOW THEREFORE BE IT RESOLVED, that the BOCC has determined proceeding with the interlocal agreement between TRPC and Lewis County is in the best public interest and is hereby approved, and the BOCC is authorized to sign the same.

DONE IN REGULAR SESSION this 27th day of June 2016.

APPROVED AS TO FORM:
Jonathan L. Meyer, Prosecuting Attorney

By: Deputy Prosecuting Attorney

BOARD OF COUNTY COMMISSIONERS
LEWIS COUNTY, WASHINGTON

P.W. Schulte, Chair

Gary Stamper, Vice Chair

Edna J. Fund, Commissioner

ATTEST:

Karri Muir, CMC, Clerk of the Lewis County Board of County Commissioners

BOARD OF COUNTY COMMISSIONERS 1st COUNTY WASHINGTON SINCE 1845

Exhibit A

Thurston Regional Planning Council – Lewis County
Travel Demand Model Refinement for
North Lewis County Industrial Access and County-wide Model

1. Background

Lewis County is undertaking the North Lewis County Industrial Access (NLCIA) Study. The study requires travel demand modeling. This scope of work outlines a recommended approach to modifying Thurston Regional Planning Council's (TRPC) updated travel demand model to include greater detail in Lewis County, with the short term goal of using the model in the NLCIA study, and a longer term goal of generating an updated travel demand model for Lewis County.

2. Current Travel Demand Models

a) Previous Thurston Regional Planning Council Travel Demand Model

The previous TRPC travel demand model, in use prior to 2016, was built with coverage for Thurston County only. Travel in and out of the county was calibrated to ground counts on roadways providing access to and through the county (external stations). External zone travel demand forecasts were based on historical growth trends. The ground counts and forecast volumes at the external stations were for total vehicles and trucks and were distributed throughout Thurston County independent of Thurston County resident generated trips.

The distribution pattern of trips differ by trip purpose, work trips for example tend to be longer than other trips and shopping trips are oriented toward retail destinations. This difference was not reflected in trips originating from external stations in the previous TRPC model; the external stations had no purpose distinctions. In addition, the land use forecast for the external stations was based solely on historical growth patterns, and therefore omitted the variability in land use growth patterns in neighboring counties.

b) Greater Thurston Region model (GTR)

TRPC's updated travel demand model, the Greater Thurston Region model (GTR), was completed in December 2015. The new model includes major portions of Lewis, Pierce, Mason Counties, and a small part of Grays Harbor County. For Lewis, Mason and Pierce Counties the transportation networks were extracted from existing county transportation models.

Land use for Pierce County was provided by Puget Sound Regional Council (PSRC) and extrapolated to the GTR model years, 2015 and 2040. Land use for Mason, Lewis and Grays Harbor Counties was developed by TRPC using Washington State Office of Financial Management (OFM) estimates and forecasts for housing and 2014 Employment Security Department (ESD) data for the employment base. The 2040 employment forecast for Mason, Lewis and Grays Harbor land use was estimated by TRPC using the relationship of OFM population forecasts and population serving employment as well as historical trends for non-population serving employment such as manufacturing. The

methodology used to develop land use estimates for the forecast is documented in "Household and Employment Data for Thurston Regional Planning Council's Transportation Model, June 2015."

The expansion of the model into neighboring counties means that trip purpose is now available for trips originating from neighboring counties, which has led to better calibration of county-to-county travel patterns.

While the GTR model expanded into neighboring counties, the Transportation Analysis Zone (TAZs) structure for the surrounding counties is significantly more aggregate than the TAZs within Thurston County. The TAZ structure for Lewis, Mason, and Grays Harbor Counties in the GTR model doesn't contain the same level of detail as the existing transportation models for those counties – it is an aggregation of the county-specific model TAZs. Grays Harbor County area TAZs were developed specific to the GTR model.

This model construct is used to forecast trips in, out, and through Thurston County. These trips are subject to trip purpose distribution and model choice estimations and provide more robust forecasts of trips on Thurston County facilities. The GTR model validation was focused on Thurston County travel patterns including volumes at the county line. Trips internal to the surrounding counties were responding to the model coefficients that were calibrated and validated for travel within Thurston County.

c) Lewis County Travel Demand Model

The current Lewis County travel demand model is a transferal of the old TRPC model, re-calibrated and validated to Lewis County resident travel patterns. It has, as the old TRPC model did, external treatments that omit the distribution and mode choice patterns of different trip purposes. The Lewis County model development was completed in February 2006 with a forecast year of 2030. The 2006 land use was derived from ESD/OFM data and the 2030 forecasts were generated by labor participation rates and allocated by current employment distributions. It has greater network and TAZ detail than the GTR model, with up to 10 TAZs for a single zone in the GTR model. The GTR model has 31 TAZs in Lewis County which are aggregations of 180 Lewis County Model TAZs. The current Lewis County model's area of coverage is the entire county with 251 TAZs, while the GTR model is limited to the Centralia-Chehalis vicinity.

Figure 1: Comparison of extent and TAZ zone structure of the GTR and Lewis County travel demand models.

3. Recommended Model

For the NLCIA study we recommend using the GTR model. The major reasons to use this model over using the Lewis County model are its age and treatment of externals. The age would require updating both the base year (from 2006 to 2015) and forecast year (2030 to 2040). An intensive round of validation runs would be needed for the updated validation. The treatment of externals, even though the model includes the Grand Mound area of Thurston County, reduces the model's sensitivity to changing travel patterns in North Lewis County and points further north.

Using the GTR model will require model enhancement including:

- Additional zonal (TAZ) and network detail.
- A more rigorous approach to developing the 2040 land use forecast for Lewis County, with greater attention to TAZ zone allocation of the county-wide forecast, as well as any county-specific information that should be incorporated into the forecast.
- Additional calibration and validation.

4. Scope of Work – Greater Thurston-Lewis Region (GTLR) Model

Assumptions:

a) Up to three (3) meetings with local agencies and their staff/consultants to discuss zone and network structure, screenline locations and preliminary outcomes/results/validation.
b) Up to three (3) meetings with local agencies and their staff/consultants to discuss current and future land use and future land use alternatives.
c) Lewis County will provide historic traffic counts for identified screen lines. Any identified traffic count gaps will be collected by Lewis County.
d) Lewis County will support coordination with agency partners including: Chehalis, Centralia, Napavine and other cities (Winlock, Toledo).
e) Current and future aggregated land use developed will align with Office of Financial Management's population estimates and forecast.
f) Base data for covered employment estimates will be the state Employment Security Department (ESD). If Lewis County does not have a data sharing agreement in place with ESD, and cannot execute one in a timely manner, TRPC will aggregate the land use in such a manner as to protect confidentiality of data (as required by their data sharing agreement with ESD).
g) Land use options for the North Lewis County Industrial Access will be provided by Lewis County (and their NLCIA consultant) and reflect an aspirational land use.
h) Interim deliverables will be provided to Lewis County and partner agencies as "works in progress" and will be incorporated into a Calibration/Validation Report as documentation of the effort.

a) Project Management

This task will involve project coordination, team meetings, reporting, and other tasks associated with project management.

Deliverable: Monthly status and billing reports.

b) New Transportation Analysis Zone Structure

The full countywide Lewis County transportation analysis zone (TAZ) structure will be reviewed by TRPC and Lewis County for any additional refinement. With the TAZ boundaries identified, the TRPC team will review the network in the GTLR model with input from the Lewis County local agencies and add/update roadways needed to compliment the TAZ structure. New TAZ shape files will be created. This will expand the model from 31 to 251 TAZs at a minimum.

Deliverable: TAZ map.

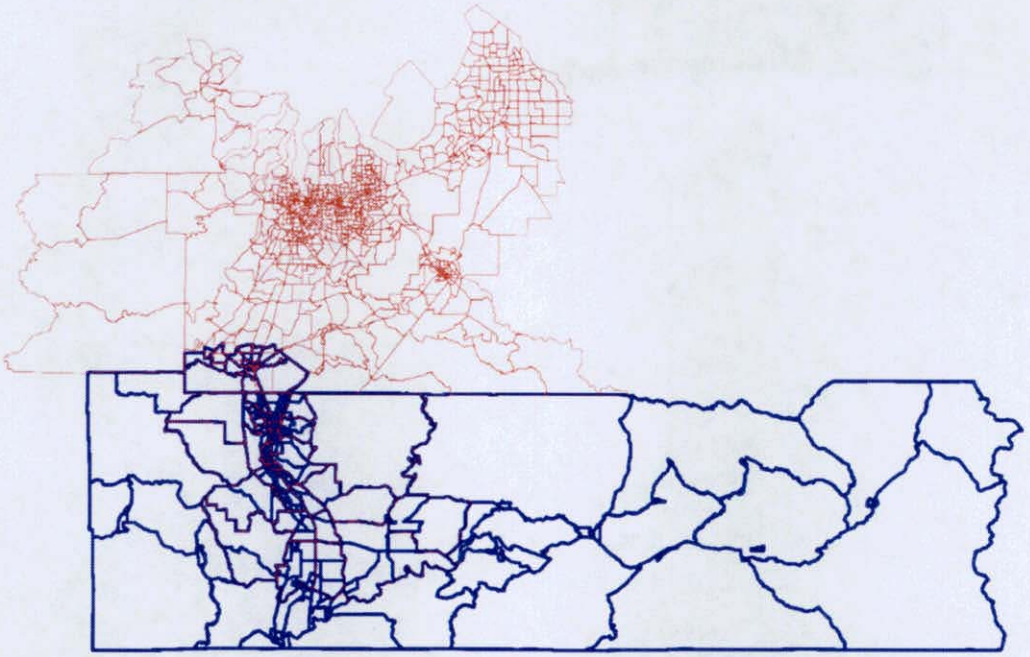

Figure 2: Proposed TAZ structure of a new Greater Thurston-Lewis Regional (GTLR) Model

c) 2015 and 2040 Land Use

Both 2015 housing and 2014 employment will be re-aggregated to the new TAZ structure. TRPC will coordinate with OFM to obtain updated dwelling unit estimates by TAZ. The GTR model has 2014 covered employment data for Lewis County that has been cleaned and geocoded. *Expanding the TAZ's to cover all of Lewis County will require geocoding and cleaning the 2014 covered employment for the new TAZs outside of the GTR model area.* TRPC and Lewis County staff will review the TAZ allocations of housing and employment to identify possible miss-matches.

The 2040 land use growth forecasts for Lewis County in the Greater Thurston Region (GTR) model will be allocated to the revised and more detailed TAZ structure. The allocations will be reviewed with Lewis County and partner agency staff to validate both countywide totals and TAZ allocations (with review material provided at a detail level appropriate to reflect TRPC's data sharing agreement with ESD.)

Deliverables:

Updated Land use documentation: "Household and Employment Data for Thurston Regional Planning Council's Transportation Model, Grays Harbor, Mason, Lewis, Thurston and Pierce Counties."

d) 2015 and 2040 Network Refinements and Road System Coding

Update of network coding to be consistent with network hierarchy used for Thurston County. The review will be conducted by Lewis County, with guidance on the classification system from TRPC. TRPC will review and update the network for posted speed, lanes, and lane capacity.

Existing roadway traffic counts will be inventoried and network screen lines will be identified.

For screen line locations missing existing roadway counts, new traffic counts will be collected by the county, cities, and state and entered into the model. Traffic counts for the externals in the Lewis County portions of the model will be reviewed and updated where needed. Centroid connections will be reviewed by the study team. Transit route coding will be reviewed and updated where routes have changed. Additional existing network detail will be added to accommodate the detail of the zone structure and industrial area plans.

Planned roadway improvements by Washington State Department of Transportation (WSDOT), Lewis County, and the cities of Chehalis, Centralia, and Napavine will be reviewed to identify new network capacity projects to build the 2040 network. Twin Transit plans for additional transit service will be incorporated.

Deliverable: Network maps.

e) 2015 Model Calibration, Trip Assignments, and Network Validation

The household travel survey used to develop coefficients for the GTR model focused on Thurston County, Joint Base Lewis-McChord (JBLM), and western Pierce County. The majority of households surveyed resided in Thurston County. The GTR model coefficients will be iteratively adjusted to validate multimodal flows in Lewis County. The validation for GTLR will focus on auto and truck trips, which can be calibrated to traffic counts.

Deliverable: Screenline summaries for model calibration.

f) 2040 Model Forecast and Alternatives Analysis

A 2040 model will be built using the 2040 land use and network.

Up to three (3) project scenarios will be run, including the NLCIA land use or roadway scenario options, based on input from the project team. For each scenario, base year and forecast results will be provided to the team for further performance evaluation.

Deliverable: Link volume maps, screenline summaries, and tables noting vehicle miles traveled and vehicle hours traveled to compare current year, baseline 2040 and project scenario options.

g) Ongoing Technical Support

TRPC staff will provide 40 hours of technical support after the conclusion of the project, and also provide all model files, validation and calibration report and other documentation.

Project Timeline

Work would commence as soon as the Inter-local agreement is executed.

Project Tasks	Timeline
a) Project Management	Ongoing
b) New Transportation Analysis Zone Structure	October, 2016
c) 2015 and 2040 Land Use	October, 2016
d) 2015 and 2040 Network Refinements and Road System Coding	October, 2016
e) 2015 Model Calibration, Trip Assignments, and Network Validation	Three months after receipt of 2016 traffic counts (collected in October, 2016).
f) 2040 Model Forecast and Alternatives Analysis	Two months after calibration/validation.
g) Ongoing Technical Support	As needed

Budget

Project Tasks	Total Staff Hours		Cost for North Lewis Study Area	Additional Cost for Remainder of Lewis County	Total Cost
	Modelers	Planning/GIS			
a) Project Management	8	8	$1,539	$0	$1,539
b) New Transportation Analysis Zone Structure	16	58	$5,283	$767	$6,049
c) 2015 and 2040 Land Use	20	148	$12,229	$1,227	$13,455
d) 2015 and 2040 Network Refinements and Road System Coding	170	48	$15,382	$2,939	$18,321
e) 2015 Model Calibration, Trip Assignments, and Network Validation	140	52	$12,999	$3,460	$16,459
f) 2040 Model Forecast and Alternatives Analysis*	76	86	$13,174	$957	$14,131
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Total	**450**	**420**	**$63,420**	**$10,053**	**$73,473**

* Budget for up to three scenarios.

INTERLOCAL COOPERATION AGREEMENT FOR TRAVEL DEMAND MODELING BETWEEN THE THURSTON REGIONAL PLANNING COUNCIL AND LEWIS COUNTY

THIS AGREEMENT, made and entered into in duplicate on this _____ day of _____, 2016, pursuant to authority of R.C.W. 39.34.080 and in conformance with R.C.W. 43.09.210, by and between THURSTON REGIONAL PLANNING COUNCIL, a municipal corporation of the State of Washington, hereinafter referred to as the "TRPC", and LEWIS COUNTY, Washington, a political subdivision of the State of Washington, hereinafter referred to as "COUNTY".

WITNESSETH:

IT IS HEREBY COVENANTED AND AGREED as follows:

1. The COUNTY requests that the TRPC perform the work listed in the proposal titled *Travel Demand Model Refinement for North Lewis County Industrial Access and Countywide Model,* attached hereto as exhibit "A" for a total cost of **$73,473.00**, and hereby guarantees reimbursement to the TRPC for all work completed. The TRPC will contract all necessary labor, material, and equipment incidental to complete the tasks described in exhibit "A".

2. The COUNTY hereby agrees to reimburse the TRPC for all work done, based upon the actual cost of labor, equipment rental, and materials used, and as described in the budget section of exhibit "A".

3. The COUNTY certifies and warrants that it has the legal authority to accomplish this work with its own personnel, but in fact has insufficient manpower and expertise to accomplish this work.

4. It is understood and agreed that all reimbursable work as provided for hereto shall be accomplished by the TRPC, and should such reimbursable work not be accomplished prior to December 31, 2017, any and all obligation to provide same shall terminate.

5. It is understood and agreed between the parties hereto that the COUNTY agrees to protect, defend, indemnify and hold harmless the TRPC, its commissioners, agents, departments and employees against any and all liabilities, claims, damages, penalties, actions, costs and expenses (including reasonable attorney's fees) which may arise for any reason as a result of the performance of this Agreement by the TRPC, except insofar as any obligation or responsibility is imposed upon the TRPC by statute.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals the day and year first above written.

THURSTON REGIONAL PLANNING COUNCIL
2424 Heritage Court SE, Suite A
Olympia, WA 98502

Lon Wyrick, Executive Director

6-13-16
Date

APPROVED AS TO FORM:
Jonathan L. Meyer, Prosecuting Attorney

By: Deputy Prosecuting Attorney

ATTEST:

Karri Muir, CMC, Clerk of the Lewis County Board of County Commissioners

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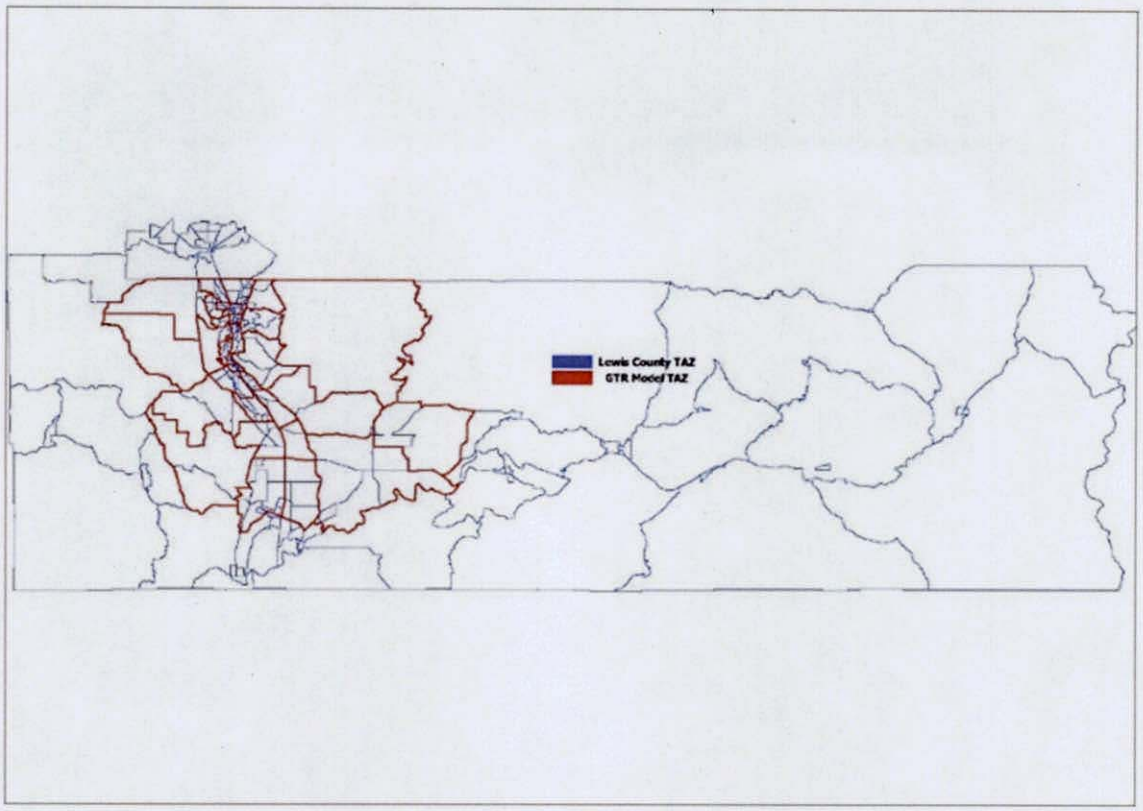

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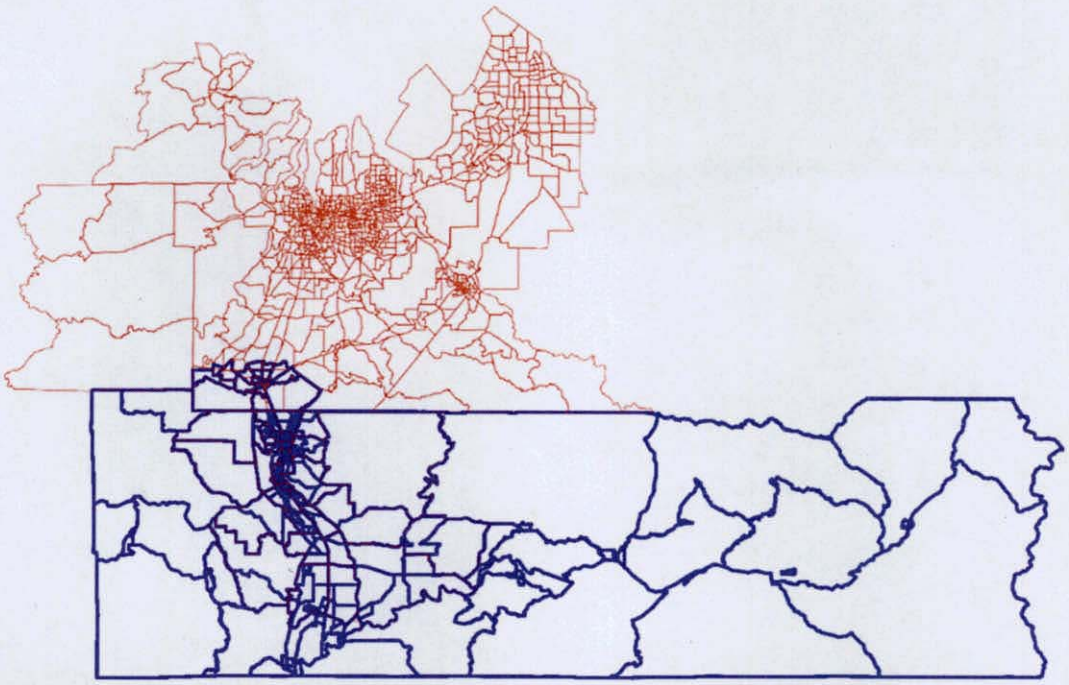
Deliverable: TAZ map.



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