GEOROUTE MODEL

Route modeling is an important aspect of determining possible new route options when a new line is required. GeoEngineers and PSE have been collaborating on route modeling since 2006. During that time, the methods have evolved into what we now term "GeoRoute". In one form or another, the model has been used on the following PSE projects:

- Sammamish – Juanita
- Rattlesnake – Lake Tradition
- Monroe – Novelty
- Alderton – White River
- Lake Hills – Phantom Lake
- Ebey Sough

In each route modeling effort, the data was examined extensively and weighted carefully for use in the model. It is impossible to create a fully unbiased weighting system, but what is presented below reflects five years of collaboration as well as review and comparisons to other modeling efforts, internal and external to PSE. This current Sammamish – Juanita Route project benefits from that experience. Discussions and information from previous project reviews and public outreach efforts on this project have also been taken into account.

Data are typically obtained from local government sources first, then state or federal sources if required. We use the local government sources first because typically the data is more correct and detailed than state or federal data (usually due to scale). When there are multiple data sources listed, it means that the data has been combined spatially to fully cover the study area (for example wetlands).

We have grouped the individual GIS data layers into three categories: Built Environment, Natural Environment and Engineering Considerations (details below). In general, the built and natural environment features have been more extensively mapped in GIS than engineering considerations. However each category is an important component in selecting a route. For this reason, the data have been grouped into these categories and then in GeoRoute these categories are weighted so that there is a balance among the route selection components.

There is a completely separate category termed "opportunities". This is a separate category in the model and represents areas mapped in GIS that may provide an opportunity for a route. This category includes factors that are not represented in the other categories, but still important in route selection. Examples include existing PSE ownership or locating along arterial streets (see details below).

BUILT ENVIRONMENT DATA SOURCES

Data Reviewed, Within Study Area	Weighting	Data Sources
Single-Family Res. Zoning	20%	Redmond, Kirkland
Multi-Family Res. Zoning	15%	Redmond, Kirkland
Urban Recreation Zoning	10%	Redmond
Native Growth Protection Easement	15%	Redmond, Kirkland
Parcel Size < 5 ac	7%	Redmond, Kirkland
Local Parks	8%	Redmond, Kirkland
Mapped View Corridors	5%	Redmond, Kirkland
Area of known WSDOT Improvements	10%	PSE
School Parcels	10%	Redmond, Kirkland
Total	100%	

__50__ %

Data Reviewed, Not Within Study Area
Cultural/Historical Resources
Areas of Property Disputes
Open Space Taxation Parcels
Airports
Scenic Highways
Surface Mining
Parcels Fronting Local Access Streets

NATURAL ENVIRONMENT DATA SOURCES

Data Reviewed, Within Study Area	Weighting	Data Sources
Wetlands < 1 ac	5%	Redmond, Kirkland
Wetlands > 1 ac	10%	Redmond, Kirkland
Landslide Hazard	10%	Redmond, Kirkland
Erosion Hazard	10%	Redmond, King County
Seismic/Liquefaction Hazard	5%	Redmond, Kirkland
Steep Slopes	10%	LiDAR derived from Puget Sound LiDAR Consortium
Stream, non-fish bearing (PHS)	5%	Redmond, Kirkland, WA Dept F&W
Stream, fish-bearing (PHS)	10%	Redmond, Kirkland, WA Dept F&W
Priority Habitat and Species (PHS) Polygons	15%	WA Dept F&W
Shoreline Jurisdiction	0%	Kirkland, King County
Lakes (included in wetlands)	0%	Redmond, Kirkland
100-yr floodplain	10%	Redmond, Kirkland
Contiguous Tree Canopy >10 acres	10%	Kirkland, digitized from aerial photos
Total	100%	

__35__ %

GeoEngineers

Data Reviewed, Not Within Study Area
Washington Natural Heritage Program Areas

ENGINEERING CONSIDERATIONS DATA SOURCES

Data Reviewed, Within Study Area	Weighting	Data Sources
Interstate Highway Crossing	30%	King County
Parcel not adjacent to Public R/W	15%	Redmond, Kirkland
Buildings within 15' setback of R/W	20%	Redmond, Kirkland
Steep Slopes	20%	LiDAR derived from Puget Sound LiDAR Consortium
Street Curves	15%	Redmond, Kirkland
Total	100%	

___15___ %

Data Reviewed, Not Within Study Area
BPA Crossing
Future WSDOT Improvement Areas

OPPORTUNITIES

Data Reviewed, Used for Modeling	Original Weighting	11/28/11 Weighting	Data Sources
W/in Comm., Ind. Zoning District	15%	20%	Redmond, Kirkland
Adj. to Arterial Street	25%	25%	Redmond, Kirkland
Adj. or w/in Regional Trail R/W	10%	0%	Redmond, Kirkland
Adj. to Railroad R/W	10%	10%	Redmond, Kirkland
Parcel Size > 20 ac	10%	10%	Redmond, Kirkland
PSE Ownership/RW	15%	15%	Redmond, Kirkland
Overhead Distribution	15%	20%	Redmond, Kirkland
Total	100%	100%	

Data Reviewed, Not Used for Modeling
Open Vegetative Cover
Community Plan Compatibility

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