

# Appendix D

# SAFETY PRIORITY

# INDEX SYSTEM DATA

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**Oregon Department of Transportation**

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# **Safety Management System**

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## **Safety Priority Index System (SPIS)**



OREGON DEPARTMENT of TRANSPORTATION  
Traffic Management Section  
Transportation Safety Division

September 2001

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## Safety Priority Index System (SPIS)

The Safety Priority Index System (SPIS) is a method developed in 1986 by the Oregon Department of Transportation (ODOT) for identifying potential safety problems on state highways. The development of SPIS complied with the federal Highway Safety Improvement Program (HSIP) and the Federal Highway Administration (FHWA) accepted SPIS as fulfilling the requirements of the HSIP. When Oregon began developing its Safety Management System in response to the 1991 ISTEA, it identified SPIS as one of several essential building blocks. SPIS has been recognized as an effective problem identification tool for evaluating state highways for segments with higher crash histories.

Several modifications to SPIS were implemented following the study, "An Evaluation of the Safety Priority Index System (SPIS)," completed by Dr. Robert Layton of the Transportation Research Institute at Oregon State University. These modifications were implemented in the 1998 SPIS reports, and were "fine-tuned" in the 1999 SPIS reports. These adjustments to the calculations created a large difference in the number of sites located in 1998 in comparison to years past, making it *appear* that more sites exist. However, the new calculations and listings are more applicable to both urban and rural sites, and allow for better understanding of the reported values.

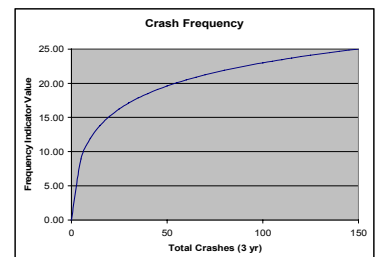
### Index Formulation

The SPIS is a method of identifying locations where safety money may be spent to the highest benefit. The SPIS score is based on three years of crash data and considers crash frequency, crash rate, and crash severity. A roadway segment becomes a SPIS site if a location has three or more crashes, or one or more fatal crashes over the three year period. SPIS sites are 0.10 mile sections on the state highway system. The priority index has three parameters and associated Indicator Values (IV):

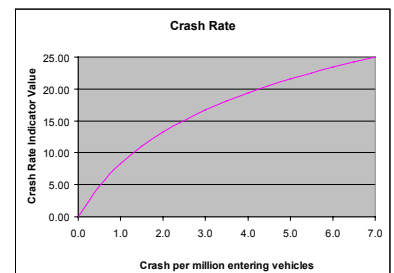
Crash frequency indicator value	(IV <sub>Freq</sub> )	25% of SPIS score
Crash rate indicator value	(IV <sub>Rate</sub> )	25% of SPIS score
Crash severity indicator value	(IV <sub>Severity</sub> )	50% of SPIS score

The crash frequency indicator value, **IV<sub>Freq</sub>**, is a value between 0 and 25 determined using a logarithmic distribution based on total crashes in a three-year period. The maximum indicator value of 25% is obtained when the total number of crashes reaches 150 crashes on the same 0.10-mile segment over a 3-year period.

$$IV_{Freq} = \left[ \frac{\text{LOG}(\text{TotalCrashes} + 1)}{\text{LOG}(150 + 1)} \right] (25)$$



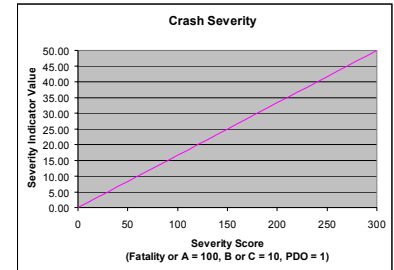
The crash rate indicator, **IV<sub>Rate</sub>**, is a value between 0 and 25, also determined by using a logarithmic distribution based on the following crash rate calculations. Again, the maximum indicator value of 25% is obtained when the crash rate reaches seven crashes per million entering vehicles.



$$IV_{Rate} = \left[ \frac{\text{LOG} \left( \left( \frac{\text{TotalCrashes}(1,000,000)}{(3\text{yr})(365\text{days})(ADT)} \right) + 1 \right)}{\text{LOG}(7+1)} \right] \quad (25)$$

The crash severity indicator,  $IV_{Severity}$ , is a value between 0 and 50, which is determined by using a linear distribution from the calculation below. The formula considers severity values between 0 and 300 only, therefore severity products above 300 are assigned the maximum value, to match the maximum indicator value of 50%.

$$IV_{Severity} = \left[ \frac{100(FATAL + INJ_A) + (10)(INJ_B + INJ_C) + (PDO)}{(300)} \right] \quad (50)$$



Where:

- FATAL = The number of fatalities;
- $INJ_A$  = the number of severe injuries (Class A);
- $INJ_B$  = the number of moderate injuries (Class B);
- $INJ_C$  = the number of minor injuries (Class C);
- PDO = the number of "property damage only" crashes.

The SPIS value is the sum of the above indicator values ( $IV_{Freq} + IV_{Rate} + IV_{Severity}$ ) for 0.10 mile (0.16 km) sections of urban and rural roads, shifted by 0.01 mile for each new section.

### SPIS Report Formats

In 2001, the SPIS Reports were reformatted to enhance usability. The following changes were incorporated:

- SPIS sites have been "grouped" and are reported as such. A "group" is defined as consecutive SPIS sites that are less than 0.01 miles from EMP to BMP of the next SPIS site. Groups were defined for the Top 10% and for All Sites. Investigation reports can be reported for "group" rather than individual site. Complete SPIS lists are still available.
- City street, state highways, other connections are listed for the BMP of any SPIS site.
- City and County jurisdiction included for each SPIS Site.
- Route Number (OR-22, I-5 etc.) included for each SPIS site.
- Percentile reported for the each 5% increment of the top 25%.
- An Access database available to Region staff that allows for custom queries by highway, milepoint, and Region.



**Oregon Department of Transportation**

Region **5**

**2001, Top 10% SPIS Groups - By Highway, Prefix, Milepoint**

Route	Pfx	BMP	EMP	Lgth	99ADT*	Crsh*	Fatal*	Cul*	City	County	Connection in Group*	SPIS *
<b>6 OLD OREGON TRAIL</b>												
I-84	0	269.91	270.09	0.18	8,700	11	0	R		Union		60.94
I-84	0	356	356.09	0.09	8,200	5	1	R		Malheur		48.08
<b>28 PENDLETON-JOHN DAY</b>												
OR-37	0	0.47	0.65	0.18	7,800	14	0	U	Pendleton	Umatilla	S.W. 1ST ST.	70.81

Field	Definition	Source
Hwy	Internal ODOT Highway Number	ITIS Database
Hwy Name	Internal ODOT Highway Name	ITIS Database
Route	Route Number	Arcview Dataset, data added by Traffic Management
Pfx	Prefix, See Crash Data Code Manual for descriptions	ITIS Database
BMP	Beginning Milepoint of SPIS site	ITIS Database
EMP	Ending Milepoint of SPIS site	ITIS Database
Lgth	Length, for SPIS Groups, the distance from the BMP to the EMP	Calculated
99ADT	Average Daily Traffic in 1999. For SPIS groups, the maximum value in the group is reported	ITIS Database
Crsh	Total number of crashes in three year period in 0.10 mile. For SPIS groups, the maximum value in the group is reported	Crash Database
Fatal	Total number of fatal crashes in three year period in 0.10 mile. For SPIS groups, the maximum value in the group is reported	Crash Database
Cul	Describes roadway environment, can be urban (U) or rural (R)	ITIS Database
City	If BMP of SPIS site is within city limits, city name is reported	Arcview Dataset, data added by Traffic Management
Percentile	The percentile of the SPIS site, relative to the entire list	Calculated
County	If BMP of SPIS site is within county limits, county name is reported	Arcview Dataset, data added by Traffic Management
SPIS	Composite score based on rate, frequency, and severity of crashes. For SPIS groups, the maximum value in the group is reported	SPIS program
Connection	Name of connection at BMP. Not all connections are reported. For SPIS groups, the maximum alphabetical value in the group is reported	ITIS Database, added by Traffic Management

## **SPIS Analysis**

Each year, the Traffic Management Section generates regional reports of the top 10% ranked SPIS sites for review by the five Region Traffic Managers. The Region staff evaluates the sites on this "Top 10%" list and considers the safety problems which may be contributing to the crash history at these locations. If a correctable problem is identified, benefit/cost analysis is performed on viable options and appropriate projects are initiated, often with funding from the Hazard Elimination Program, as well as other sources. Regions report the results of these site evaluations, including potential causes and possible corrections, to the State Traffic Engineer. While the SPIS reports are computer-generated by the Traffic Management Section, the rest of the process is manual and is primarily performed by Regional personnel.

An Accident Summary Database is also created annually for use by region and consultant staff in evaluating sections of highway. The interface allows the user to enter a section of state highway, from milepost 'x' to milepost 'y'. The database then yields information for that section of highway regarding number and type of accidents, highest and lowest SPIS values, and traffic volume information.

### **Annual Process for SPIS Reports**

- *April* The Crash Data Unit of the Transportation Data Section collects, compiles, and enters crash data into a database. This data is accessed by the Information Services Branch (ISB) and placed on the production server for use by the Traffic Management Section.
- *May* The PSMS Coordinator runs the Manage SPIS application, created by ISB, to compile the data on the production server. Once the necessary information has been compiled, the PSMS Coordinator produces the resulting reports for posting to the Intranet, and creates GIS points for the STIP-SIP map and the current Accident Summary Database. The PSMS Coordinator also has the ability to perform variable length analysis of SPIS values on state highway sections.
- *July* The PSMS Coordinator checks the SPIS reports, Accident Summary Database, and other elements for accuracy. The final reports are posted to the Intranet for use by the region traffic personnel in investigating the SPIS sites. The new version of the Accident Summary Database is distributed to the holders of the old databases as well as any other transportation professionals that request the data. The GIS points are forwarded to the GIS Coordinator in the Transportation Inventory/Mapping Unit of the Transportation Data Section for input into the STIP-SIP ArcView tool (see Chapter 4 for details).
- *July-December* The Region Traffic Managers and staff review the Intranet reports and investigate the SPIS sites and associated crash data (using the Accident Summary Database, and other references) indicated for their area. Their goal is to determine the possible cause(s) of the listed crashes and estimate what, if any, fixes might reduce the crash potential at each site. If a correctable problem is identified, benefit/cost analysis is performed on viable options and appropriate projects are initiated. This information is entered into the "Top 10% Investigation" spreadsheet for submittal to the Traffic Management Section. Regions report the results of these site evaluations, including potential causes and possible corrections, to the State Traffic Engineer. These completed reports are due in the first quarter of the following year.

## Contact Information

If you have any questions regarding the SPIS or the elements and tools involved, please contact:

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Table D-1: ODOT 2001 Top 10% SPIS Sites in Clackamas County

Oregon Department of Transportation											Statewide		
2001, Top 10% SPIS Groups - By Highway, Prefix, Milepoint													
Reg.	Route	Pfx	BMP	EMP	Lgth	99ADT*	Crsh*	Fatal*	Cul*	City	County	Connection in Group*	SPIS *
<b>3 OSWEGO</b>													
1	OR-43	0	5.67	5.83	0.16	25,400	19	2	R		Clackamas	S. TERWILLIGER BLVD.	69.35
1	OR-43	0	6.04	6.23	0.19	36,300	31	0	U	Lake Oswego	Clackamas	LEG, FROM "A" AVE.	74.2
1	OR-43	0	6.62	6.8	0.18	32,200	26	0	U	Lake Oswego	Clackamas	MCVEY AVE.	73.78
1	OR-43	0	8.75	8.91	0.16	20,400	28	0	U	West Linn	Clackamas	S. WALLING CIRCLE	56.88
<b>26 MT. HOOD</b>													
1	US-26	-	24.2	24.36	0.16	15,400	21	0	U	Sandy	Clackamas	STRAUSS AVE.	57.13
1	US-26	0	22.66	22.8	0.14	28,100	11	0	U		Clackamas		47.89
1	US-26	0	23.46	23.55	0.09	29,200	8	0	U	Sandy	Clackamas		52.47
1	US-26	0	23.78	23.96	0.18	29,200	25	0	U	Sandy	Clackamas	S.E. BLUFF RD.	77.6
1	US-26	0	26.77	26.88	0.11	17,400	8	0	R		Clackamas	FRONTAGE RD.M.P. F26.79	55.5
1	US-26	0	52.96	53.09	0.13	6,800	4	2	R		Clackamas	LEG, TO FRONTAGE RD.	46.86
1	US-26	0	53.91	54.08	0.17	6,800	7	0	R		Clackamas	FRONTAGE RD. M.P. F54.07	57
<b>51 WILSONVILLE-HUBBARD</b>													
2		0	1.38	1.56	0.18	11,500	14	0	R		Clackamas	N.E. ARNDT RD.	53.31
<b>64 EAST PORTLAND FREEWAY</b>													
1	I-205	0	8.98	9.08	0.10	96,300	32	0	U	West Linn	Clackamas		48.44
1	I-205	0	9.06	9.23	0.17	96,300	19	0	U	West Linn	Clackamas		62.09
1	I-205	0	10.26	10.39	0.13	133,700	21	0	U	Oregon City	Clackamas		49.01
1	I-205	0	10.91	11.09	0.18	133,700	14	1	U	Gladstone	Clackamas		58.92
1	I-205	0	13.47	13.59	0.12	99,500	16	0	R		Clackamas		49.93
1	I-205	0	13.52	13.62	0.10	99,500	12	0	R		Clackamas		56.54
1	I-205	0	14.82	14.92	0.10	137,100	13	0	R		Clackamas		56.81
1	I-205	0	15.41	15.59	0.18	137,100	11	0	R		Clackamas		55.57
1	I-205	0	16.47	16.59	0.12	145,600	18	0	R		Clackamas		50.46
<b>68 CASCADE HWY NORTH</b>													
1	OR-213	0	7.39	7.49	0.10	23,400	27	0	R		Clackamas		49.26
1	OR-213	0	7.43	7.63	0.20	32,200	99	0	R		Clackamas	JOHNSON CREEK BLVD.	91.96
1	OR-213	0	7.89	8	0.11	32,200	25	0	R		Clackamas	OTTY ST.	53.66
1	OR-213	0	7.96	8.15	0.19	33,400	39	0	R		Clackamas	GLENCOE RD.	75.62
1	OR-213	0	8.14	8.43	0.29	33,500	55	0	R		Clackamas	KING RD.	81.09
1	OR-213	0	8.53	8.76	0.23	33,500	48	0	R		Clackamas	S.E. CAUSEY AVE.	79.45
1	OR-213	0	8.71	8.89	0.18	33,500	32	0	R		Clackamas		56.8
1	OR-213	0	8.82	8.91	0.09	33,500	28	0	R		Clackamas		49.26
1	OR-213	0	9	9.18	0.18	32,900	30	0	R		Clackamas	SOUTHGATE ST.	63.38
1	OR-213	0	9.12	9.32	0.20	32,900	63	0	R		Clackamas	SUNNYSIDE RD.	82.88
1	OR-213	0	9.31	9.49	0.18	31,600	32	0	R		Clackamas	AMBLER RD. (BLOCKED)	68.13
<b>81 PACIFIC HIGHWAY EAST</b>													
1	OR-99E	0	5.11	5.29	0.18	51,600	38	0	U	Milwaukie	Clackamas	LEG, TO/FROM RDBD 2	74.7
1	OR-99E	0	6.21	6.39	0.18	42,300	22	0	U	Milwaukie	Clackamas	BLUE BIRD ST. (1ST RT.)	54.9
1	OR-99E	0	6.78	6.96	0.18	39,000	29	0	R		Clackamas	PARK AVE.	65.66
1	OR-99E	0	7.71	7.82	0.11	36,100	7	0	R		Clackamas		49.49
1	OR-99E	0	7.77	7.96	0.19	36,100	46	0	R		Clackamas		67.44
1	OR-99E	0	8.16	8.29	0.13	36,100	14	0	R		Clackamas		46.47
1	OR-99E	0	8.33	8.51	0.18	36,600	45	0	R		Clackamas	CONCORD RD.	65.71
1	OR-99E	0	8.66	8.84	0.18	36,600	17	2	R		Clackamas	VINEYARD RD.	64.99
1	OR-99E	0	8.88	9.06	0.18	36,600	26	0	R		Clackamas		72.43
1	OR-99E	0	9.13	9.31	0.18	36,600	34	0	R		Clackamas	ROETHE RD.	74.27
1	OR-99E	0	9.42	9.6	0.18	36,600	15	0	R		Clackamas	BOARDMAN AVE.	67.64
1	OR-99E	0	9.71	9.89	0.18	36,600	43	0	R		Clackamas	JENNINGS AVE.	77.62
1	OR-99E	0	10.25	10.37	0.12	35,900	27	0	R		Clackamas		48.39

Pfx: (0) 2-way, add dir; (-) Couplet, non-add dir; (9) Spur; (R) Spur, Couplet, non-add dir; (8) Temporary

\* Max (num or alpha) in SPIS group



# Oregon Department of Transportation

Statewide

## 2001, Top 10% SPIS Groups - By Highway, Prefix, Milepoint

Reg.	Route	Pfx	BMP	EMP	Lgth	99ADT*	Crsh*	Fatal*	Cul*	City	County	Connection in Group*	SPIS *
1	OR-99E	0	10.66	10.84	0.18	36,800	42	0	U	Gladstone	Clackamas	GLOUCESTER ST.	63.01
1	OR-99E	0	10.93	11.11	0.18	36,800	43	1	U	Gladstone	Clackamas	W. CLARENDON ST.	73.75
1	OR-99E	0	11.43	11.62	0.19	35,900	41	1	U	Oregon City	Clackamas	HWY. 001E(081) M.P. (3)11.	77.21
1	OR-99E	0	11.55	11.73	0.18	35,900	33	0	U	Oregon City	Clackamas	HWY. 064 CONN. M.P. 2C9.	71.92
1	OR-99E	0	11.72	11.9	0.18	38,200	29	0	U	Oregon City	Clackamas	LEG, FROM HWY. 064 CO	73.28
1	OR-99E	0	11.86	12.05	0.19	38,200	42	0	U	Oregon City	Clackamas	HWY. 001E(081) M.P. (3)11.	75.67
1	OR-99E	0	12.17	12.41	0.24	26,100	29	0	U	Oregon City	Clackamas	9TH ST.	75.37
1	OR-99E	0	12.78	12.96	0.18	19,500	21	1	U	Oregon City	Clackamas		73.64
1	OR-99E	0	12.91	13	0.09	19,500	14	0	U	Oregon City	Clackamas		48.89
1	OR-99E	0	12.95	13.09	0.14	19,500	18	0	U	Oregon City	Clackamas	LEG, TO STREET	70.02
1	OR-99E	0	17.72	17.92	0.20	18,400	24	1	R		Clackamas	SOUTH END RD.	75.47
1	OR-99E	0	19.26	19.44	0.18	18,400	16	0	R		Clackamas	E. TERRITORIAL RD.	70.31
1	OR-99E	0	20.16	20.32	0.16	18,400	7	1	R		Clackamas	N. REDWOOD ST.	51.11
2	OR-99E	0	20.53	20.71	0.18	19,800	21	1	U	Canby	Clackamas	S. PINE ST.	73.99
2	OR-99E	0	21.05	21.23	0.18	20,600	31	0	U	Canby	Clackamas	S. JUNIPER ST.	75.11
2	OR-99E	0	21.33	21.5	0.17	20,600	18	0	U	Canby	Clackamas		50.99
2	OR-99E	0	22.8	22.98	0.18	19,200	25	0	U		Clackamas	LEG, TO BARLOW RD.	79.31
<b>160 CASCADE HWY SOUTH</b>													
1	OR-213	0	0.05	0.15	0.10	55,100	40	0	U	Oregon City	Clackamas		49.29
1	OR-213	0	0.09	0.19	0.10	55,100	41	0	U	Oregon City	Clackamas		48.19
1	OR-213	0	0.39	0.57	0.18	46,400	44	0	U	Oregon City	Clackamas	ABERNATHY RD.	76.47
1	OR-213	0	2.89	3.07	0.18	41,700	39	0	U	Oregon City	Clackamas	BEAVERCREEK RD.	63.48
1	OR-213	0	3.5	3.68	0.18	22,000	29	0	U	Oregon City	Clackamas	ROAD, TO CLACKAMAS C	76.28
2	OR-213	0	20.64	20.82	0.18	4,200	3	1	R		Clackamas	S. ROSEWOOD WAY	46.45
<b>161 WOODBURN-ESTACADA</b>													
1	OR-211	0	19.67	19.81	0.14	4,900	4	1	R		Clackamas		51.38
<b>171 CLACKAMAS</b>													
1	OR-224	0	1.25	1.41	0.16	36,700	12	0	U	Milwaukie	Clackamas	CONN. NO. 1 (EDISON ST.)	55.42
1	OR-224	0	1.81	1.98	0.17	42,600	11	0	U	Milwaukie	Clackamas	S.W. FREEMAN WAY	54.26
1	OR-224	0	3.11	3.29	0.18	39,100	29	0	R		Clackamas	LAKE RD.	62.81
1	OR-224	0	3.64	3.82	0.18	59,800	46	0	R		Clackamas	JOHNSON RD.	61.87
1	OR-224	0	5.28	5.46	0.18	58,500	21	0	R		Clackamas	S.E. 98TH AVE.	55.31
1	OR-224	0	5.47	5.72	0.25	58,500	44	0	R		Clackamas	S.E. 102ND	76.34
1	OR-224	0	5.67	5.76	0.09	47,500	14	0	R		Clackamas		47.19
1	OR-224	0	6.85	7.03	0.18	37,500	13	0	R		Clackamas	S.E.130TH AVE.	65.86
1	OR-224	0	7.14	7.32	0.18	37,500	39	1	R		Clackamas	S.E. 135TH AVE.	76.41
1	OR-224	0	9.21	9.35	0.14	15,000	18	0	R		Clackamas		58.07
1	OR-224	0	10.22	10.36	0.14	11,100	5	0	R		Clackamas		51.4

Pfx: (0) 2-way, add dir; (-) Couplet, non-add dir; (9) Spur; (R) Spur, Couplet, non-add dir; (8) Temporary

\* Max (num or alpha) in SPIS group

**Table D-2: Clackamas County Intersections Sorted by SPIS Number for 1998-2000 Accident Data**

	Road Name	Culture	Intersecting Road Name	ADT	Total			Uninj				Frequency	Rate	Severity	SPIS	Site?
					Accidents	Fatal	A	B	C	Child	PDO					
1	31009 - NEW ERA RD	RURAL	41028 - CENTRAL POINT RD	1,945	11	0	2	5	8	2	3	12.38	21.87	50.00	<b>84.25</b>	Yes
2	12154 - SUNNYSIDE RD	URBAN	22004 - 97TH AVE	53,675	51	0	1	11	22	1	53	19.69	7.51	50.00	<b>77.20</b>	Yes
3	12154 - SUNNYSIDE RD	URBAN	22001 - 122ND AVE	39,450	39	0	0	8	23	4	42	18.38	7.73	50.00	<b>76.12</b>	Yes
4	22229 - WEBSTER RD	URBAN	22139 - THIESSEN RD	18,625	19	0	3	4	13	0	17	14.93	7.92	50.00	<b>72.84</b>	Yes
5	12154 - SUNNYSIDE RD	URBAN	12175 - 93RD AVE	31,750	29	0	1	2	13	1	36	16.95	7.29	47.67	<b>71.91</b>	Yes
6	42026 - UNION MILLS RD	RURAL	42011 - RINGO RD	2,345	4	0	3	1	0	3	3	8.02	11.29	50.00	<b>69.31</b>	Yes
7	21368 - OATFIELD RD	URBAN	21070 - ROETHE RD	15,000	33	0	0	9	10	2	39	17.57	13.24	38.17	<b>68.98</b>	Yes
8	61010 - CANBY-MARQUAM HWY	RURAL	42015 - BARNARDS RD	4,090	5	0	3	4	3	0	2	8.93	9.01	50.00	<b>67.94</b>	Yes
9	41027 - BARLOW RD	RURAL	41006 - LONE ELDER RD	7,125	6	1	3	3	4	2	2	9.70	6.86	50.00	<b>66.55</b>	Yes
10	23021 - HARDING RD	RURAL	22228 - SPRINGWATER RD	3,550	6	0	2	2	5	0	2	9.70	11.22	45.33	<b>66.25</b>	Yes
11	21075 - SCHAEFFER RD	RURAL	21079 - MOUNTAIN RD	2,875	5	0	2	7	0	0	2	8.93	11.43	45.33	<b>65.69</b>	Yes
12	12154 - SUNNYSIDE RD	RURAL	22002 - 162ND AVE	14,905	13	0	2	1	5	2	11	13.15	7.04	45.17	<b>65.36</b>	Yes
13	42027 - MOLALLA AVE	RURAL	52001 - VICK RD	5,930	3	0	3	3	0	0	1	6.91	4.57	50.00	<b>61.47</b>	Yes
14	31005 - 35TH DR	RURAL	31035 - ADVANCE RD	1,550	1	0	3	1	1	0	0	3.45	5.57	50.00	<b>59.02</b>	No
15	30022 - KNIGHTS BRIDGE RD	RURAL	31024 - ARNDT RD	16,650	14	0	1	6	6	0	12	13.49	6.85	38.67	<b>59.01</b>	Yes
16	13005 - BORGES RD	RURAL	23049 - 222ND DR	3,365	4	0	2	2	2	1	2	8.02	8.84	40.33	<b>57.19</b>	Yes
17	22229 - WEBSTER RD	URBAN	22133 - WILSHIRE ST	10,000	1	2	2	0	0	0	0	3.45	1.05	50.00	<b>54.50</b>	Yes
18	33008 - FELLOWS RD	RURAL	P3115 - FOREST PARK RD	230	2	0	1	3	0	0	0	5.47	25.00	21.67	<b>52.14</b>	No
19	23036 - 242ND AVE	RURAL	13005 - BORGES RD	8,000	5	0	2	2	0	0	5	8.93	5.43	37.50	<b>51.86</b>	Yes
20	22019 - HOLCOMB BLVD	URBAN	22311 - WINSTON DR	1,100	1	0	2	3	1	0	0	3.45	7.27	40.00	<b>50.72</b>	No
21	22038 - JENNINGS AVE	URBAN	22047 - ADDIE ST	7,400	7	0	1	7	1	0	7	10.36	7.49	31.17	<b>49.01</b>	Yes
22	41028 - CENTRAL POINT RD	RURAL	31025 - CRITESER RD	1,170	4	0	1	0	4	0	1	8.02	17.03	23.50	<b>48.55</b>	Yes
23	21368 - OATFIELD RD	URBAN	22038 - JENNINGS AVE	17,050	11	0	1	2	5	0	12	12.38	5.57	30.33	<b>48.28</b>	Yes
24	13009 - TILLSTROM RD	RURAL	23049 - 222ND DR	4,175	8	0	1	2	1	0	10	10.95	12.16	23.33	<b>46.44</b>	Yes
25	33018 - REDLAND RD	RURAL	33019 - FISCHERS MILL RD	10,075	9	0	1	2	3	1	9	11.47	7.17	26.50	<b>45.14</b>	Yes

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	Road Name	Culture	Intersecting Road Name	ADT	Total					Uninj				Frequency	Rate	Severity	SPIS	Site?
					Accidents	Fatal	A	B	C	Child	PDO							
26	12153 - KING RD	URBAN	12244 - COOK CT	11,650	3	0	2	1	0	0	4	6.91	2.54	35.67	<b>45.11</b>	Yes		
27	30013 - WILSONVILLE RD	RURAL	30015 - LADD HILL RD	2,970	3	0	1	7	1	0	2	6.91	7.86	30.33	<b>45.10</b>	Yes		
28	41010 - ZIMMERMAN RD	RURAL	41027 - BARLOW RD	3,005	2	1	1	0	0	0	2	5.47	5.71	33.67	<b>44.85</b>	Yes		
29	41027 - BARLOW RD	RURAL	42015 - BARNARDS RD	4,115	4	0	1	3	4	0	1	8.02	7.64	28.50	<b>44.16</b>	Yes		
30	52004 - WRIGHT RD	RURAL	52009 - FERNWOOD RD	1,100	1	0	2	0	0	0	0	3.45	7.27	33.33	<b>44.05</b>	No		
31	14016 - HALEY RD	RURAL	23048 - 272ND AVE	2,425	1	0	2	1	1	0	0	3.45	3.84	36.67	<b>43.96</b>	No		
32	22062 - JOHNSON RD	URBAN	22066 - ROOTS RD	13,750	2	0	2	1	1	1	0	5.47	1.50	36.67	<b>43.64</b>	No		
33	12153 - KING RD	URBAN	12149 - LINWOOD AVE	19,775	13	0	1	1	3	3	8	13.15	5.65	24.67	<b>43.47</b>	Yes		
34	22400 - HARMONY RD	URBAN	12017 - FULLER RD	6,600	15	0	0	1	7	0	14	13.82	13.51	15.67	<b>42.99</b>	Yes		
35	12010 - STEVENS RD	URBAN	12154 - SUNNYSIDE RD	50,725	6	0	1	3	6	2	2	9.70	1.23	32.00	<b>42.93</b>	Yes		
36	24042 - EAGLE CREEK RD	RURAL	25016 - WILDCAT MOUNTAIN DR	3,485	10	0	0	3	5	0	10	11.95	15.47	15.00	<b>42.42</b>	Yes		
37	21368 - OATFIELD RD	URBAN	22115 - OAKLAND AVE	10,585	6	0	1	1	4	0	6	9.70	5.02	26.00	<b>40.71</b>	Yes		
38	12154 - SUNNYSIDE RD	URBAN	22006 - 142ND AVE	18,225	14	0	0	5	6	0	12	13.49	6.39	20.33	<b>40.22</b>	Yes		
39	22232 - RIVER RD	URBAN	21188 - DESWELL ST	6,100	1	0	2	0	1	0	0	3.45	1.68	35.00	<b>40.13</b>	No		
40	12154 - SUNNYSIDE RD	URBAN	22580 - 119TH DR	34,325	7	0	1	4	2	1	6	10.36	2.05	27.67	<b>40.08</b>	Yes		
41	32096 - TIMBERSKY WAY	URBAN	52033 - BEAVERCREEK RD	11,975	1	0	2	1	0	0	0	3.45	0.88	35.00	<b>39.34</b>	No		
42	34021 - SQUAW MOUNTAIN RD	RURAL	34005 - DIVERS RD	1,010	2	0	1	2	0	0	2	5.47	12.41	20.33	<b>38.22</b>	No		
43	22003 - MATHER RD	URBAN	22005 - 122ND AVE	16,875	10	0	0	6	6	0	6	11.95	5.20	21.00	<b>38.15</b>	Yes		
44	12149 - LINWOOD AVE	URBAN	12135 - STEEN CT	8,150	1	0	2	0	0	0	0	3.45	1.28	33.33	<b>38.06</b>	No		
45	23036 - 242ND AVE	RURAL	23005 - HOFFMEISTER RD	6,975	5	0	1	0	3	0	4	8.93	6.05	22.33	<b>37.32</b>	Yes		
46	30013 - STAFFORD RD	RURAL	21079 - MOUNTAIN RD	10,000	6	0	1	3	0	0	4	9.70	5.25	22.33	<b>37.28</b>	Yes		
47	22062 - JOHNSON RD	URBAN	22139 - THIESSEN RD	12,550	5	0	1	0	4	0	4	8.93	3.73	24.00	<b>36.66</b>	Yes		
48	12153 - KING RD	URBAN	12017 - FULLER RD	15,100	21	0	0	0	3	1	37	15.40	9.86	11.17	<b>36.42</b>	Yes		
49	42027 - MOLALLA AVE	RURAL	52031 - SPRAGUE RD	5,200	4	0	1	2	1	0	2	8.02	6.40	22.00	<b>36.42</b>	Yes		
50	52033 - BEAVERCREEK RD	RURAL	32039 - LAMMER RD	8,825	5	0	1	1	2	1	2	8.93	5.01	22.00	<b>35.94</b>	Yes		

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	Road Name	Culture	Intersecting Road Name	ADT	Total			Uninj				Frequency	Rate	Severity	SPIS	SPIS Site?
					Accidents	Fatal	A	B	C	Child	PDO					
51	23015 - AMISIGGER RD	RURAL	23034 - KELSO RD	5,200	3	1	0	2	2	0	1	6.91	5.09	23.50	<b>35.50</b>	Yes
52	30002 - BAKER RD	RURAL	30044 - MCCONNELL RD	400	3	0	0	1	1	0	2	6.91	24.77	3.67	<b>35.35</b>	Yes
53	12027 - BELL AVE	URBAN	12153 - KING RD	17,000	4	0	1	0	4	0	2	8.02	2.34	23.67	<b>34.03</b>	Yes
54	25016 - WILDCAT MOUNTAIN DR	RURAL	24024 - HOWLETT RD	1,310	2	1	0	0	0	0	2	5.47	10.50	17.00	<b>32.97</b>	Yes
55	41030 - MACKSBURG RD	RURAL	51019 - DRYLAND RD	2,640	3	0	1	0	0	0	4	6.91	8.56	17.33	<b>32.80</b>	Yes
56	12028 - JOHNSON CREEK BLVD	URBAN	12076 - 70TH AVE	19,800	8	0	0	4	6	0	8	10.95	3.78	18.00	<b>32.72</b>	Yes
57	21368 - OATFIELD RD	URBAN	22036 - MCNARY RD	9,600	7	0	0	0	9	2	6	10.36	6.14	16.00	<b>32.50</b>	Yes
58	21368 - OATFIELD RD	URBAN	21001 - OAK GROVE BLVD	18,850	9	0	0	5	4	0	8	11.47	4.35	16.33	<b>32.16</b>	Yes
59	23036 - 242ND AVE	RURAL	13009 - TILLSTROM RD	8,325	7	0	0	4	4	1	6	10.36	6.85	14.33	<b>31.54</b>	Yes
60	52013 - DICKEY PRAIRIE RD	RURAL	63001 - LAIS RD	700	3	0	0	1	2	0	2	6.91	19.14	5.33	<b>31.38</b>	Yes
61	12028 - JOHNSON CREEK BLVD	URBAN	12027 - BELL AVE	23,300	11	0	0	4	3	1	12	12.38	4.31	13.67	<b>30.36</b>	Yes
62	24042 - EAGLE CREEK RD	RURAL	34010 - RIVER MILL RD	3,960	2	0	1	0	2	1	0	5.47	4.56	20.00	<b>30.03</b>	No
63	21368 - OATFIELD RD	URBAN	22139 - THIESSEN RD	17,700	4	0	1	1	0	0	8	8.02	2.26	19.67	<b>29.94</b>	Yes
64	61010 - CANBY-MARQUAM HWY	RURAL	41024 - VALE GARDEN RD	6,600	3	0	1	0	1	0	3	6.91	4.17	18.83	<b>29.92</b>	Yes
65	30013 - STAFFORD RD	RURAL	21048 - ROSEMONT RD	16,350	8	0	0	3	5	0	6	10.95	4.44	14.33	<b>29.72</b>	Yes
66	33018 - REDLAND RD	RURAL	22024 - NEIBUR RD	8,300	8	0	0	2	4	0	7	10.95	7.59	11.17	<b>29.71</b>	Yes
67	52033 - BEAVERCREEK RD	RURAL	32021 - KAMRATH RD	8,365	3	0	1	1	0	1	4	6.91	3.41	19.00	<b>29.31</b>	Yes
68	37005 - LOLO PASS RD	RURAL	P7021 - AUTUMN LN	1,500	1	0	1	2	0	0	0	3.45	5.72	20.00	<b>29.17</b>	No
69	21368 - OATFIELD RD	URBAN	21004 - COURTNEY AVE	13,450	7	0	0	3	5	0	2	10.36	4.68	13.67	<b>28.70</b>	Yes
70	22230 - 82ND DR	URBAN	22234 - CLACKAMAS RD	17,025	8	0	0	6	1	0	6	10.95	4.29	12.67	<b>27.91</b>	Yes
71	15002 - BULL RUN RD	RURAL	25001 - TEN EYCK RD	1,400	1	0	1	1	0	0	0	3.45	6.04	18.33	<b>27.82</b>	No
72	51008 - MONTE CRISTO RD	RURAL	61010 - KROPF RD	1,430	1	0	1	0	1	0	0	3.45	5.94	18.33	<b>27.72</b>	No
73	22230 - 82ND DR	URBAN	22226 - ADAMS ST	17,025	8	0	0	2	5	0	4	10.95	4.29	12.33	<b>27.57</b>	Yes
74	41036 - BLACK BEAR DR	RURAL	42015 - BARNARDS RD	1,340	2	0	0	2	5	1	0	5.47	10.34	11.67	<b>27.48</b>	No
75	21042 - 65TH AVE	RURAL	21363 - MERIDIAN WAY	4,355	1	0	1	1	2	0	0	3.45	2.29	21.67	<b>27.41</b>	No

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					Accidents	Fatal	A	B	C	Child	PDO					
76	21368 - OATFIELD RD	URBAN	21022 - PARK AVE	14,575	7	0	0	1	6	0	4	10.36	4.37	12.33	<b>27.07</b>	Yes
77	22231 - HATTAN RD	RURAL	33019 - FISCHERS MILL RD	4,450	2	0	1	0	0	0	2	5.47	4.13	17.00	<b>26.61</b>	No
78	14004 - REVENUE RD	RURAL	14023 - CHIN ST	1,300	1	0	1	0	0	0	0	3.45	6.40	16.67	<b>26.52</b>	No
79	12074 - MONTEREY AVE	URBAN	12239 - 90TH AVE	4,200	2	0	1	0	0	1	0	5.47	4.34	16.67	<b>26.48</b>	No
80	24018 - TRUBEL RD	RURAL	24020 - LANGENSAND RD	340	1	0	0	0	4	0	0	3.45	15.68	6.67	<b>25.80</b>	No
81	12153 - KING RD	URBAN	12060 - 66TH AVE	11,100	2	0	1	1	0	0	0	5.47	1.83	18.33	<b>25.64</b>	No
82	21368 - OATFIELD RD	URBAN	21021 - ALDERCREST RD	11,950	9	0	0	0	4	1	7	11.47	6.29	7.83	<b>25.60</b>	Yes
83	32052 - STEINER RD	RURAL	32024 - YEOMAN RD	0	2	0	1	0	2	0	0	5.47	0.00	20.00	<b>25.47</b>	No
84	22201 - JENNINGS AVE	URBAN	22191 - FLORAL CT	0	1	0	1	3	0	0	0	3.45	0.00	21.67	<b>25.12</b>	No
85	21050 - WOODBINE RD	RURAL	21051 - GRAPEVINE RD	550	2	0	0	1	0	0	2	5.47	17.59	2.00	<b>25.07</b>	No
86	21039 - CHILDS RD	RURAL	30013 - STAFFORD RD	14,450	9	0	0	2	2	0	9	11.47	5.41	8.17	<b>25.05</b>	Yes
87	12154 - SUNNYSIDE RD	URBAN	22385 - 124TH AVE	20,850	2	0	1	0	1	1	0	5.47	1.01	18.33	<b>24.82</b>	No
88	24042 - EAGLE CREEK RD	RURAL	34052 - FOLSOM RD	3,980	4	0	0	5	0	0	3	8.02	7.83	8.83	<b>24.68</b>	Yes
89	24042 - EAGLE CREEK RD	RURAL	34004 - CURRIN RD	4,050	4	0	0	5	0	0	3	8.02	7.73	8.83	<b>24.58</b>	Yes
90	52007 - ADAMS CEMETERY RD	RURAL	52008 - FEYRER PARK RD	1,055	2	0	0	2	2	0	2	5.47	12.08	7.00	<b>24.55</b>	No
91	22228 - SPRINGWATER RD	RURAL	22231 - HATTAN RD	8,500	5	0	0	2	4	1	2	8.93	5.17	10.33	<b>24.43</b>	Yes
92	30010 - HEATER RD	RURAL	30011 - HEATER RD	200	1	0	0	0	0	0	2	3.45	20.64	0.33	<b>24.43</b>	No
93	12028 - JOHNSON CREEK BLVD	URBAN	12149 - FLAVEL AVE	22,525	7	0	0	4	2	2	6	10.36	3.00	11.00	<b>24.36</b>	Yes
94	41001 - MERIDIAN RD	RURAL	42015 - WHISKEY HILL RD	2,170	1	1	0	0	0	0	0	3.45	4.22	16.67	<b>24.34</b>	Yes
95	14016 - HALEY RD	RURAL	14027 - RAMONA DR	1,450	1	0	0	4	5	0	0	3.45	5.87	15.00	<b>24.33</b>	No
96	21001 - OAK GROVE BLVD	URBAN	21122 - EAST AVE	6,975	8	0	0	0	2	2	8	10.95	8.62	4.67	<b>24.23</b>	Yes
97	44025 - UPPER HIGHLAND RD	RURAL	43002 - BEESON RD	1,300	3	0	0	0	2	1	2	6.91	13.63	3.67	<b>24.21</b>	Yes
98	30013 - STAFFORD RD	RURAL	21373 - BORLAND RD	16,925	11	0	0	1	1	1	16	12.38	5.60	6.00	<b>23.98</b>	Yes
99	32020 - LELAND RD	RURAL	32021 - KAMRATH RD	2,240	5	0	0	0	0	0	10	8.93	13.36	1.67	<b>23.96</b>	Yes
100	22228 - SPRINGWATER RD	RURAL	44007 - METZLER PARK RD	950	3	0	0	0	0	0	4	6.91	16.31	0.67	<b>23.89</b>	Yes

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					Accidents	Fatal	A	B	C	Child	PDO					
101	22062 - JOHNSON RD	URBAN	22285 - LAKE RD	4,050	5	0	0	0	3	2	5	8.93	9.08	5.83	<b>23.84</b>	Yes
102	52033 - BEAVERCREEK RD	RURAL	42025 - CARUS RD	6,390	4	0	0	2	4	0	2	8.02	5.44	10.33	<b>23.79</b>	Yes
103	42026 - UNION MILLS RD	RURAL	43010 - WINDY CITY RD	2,635	5	0	0	0	1	0	6	8.93	12.09	2.67	<b>23.68</b>	Yes
104	21368 - OATFIELD RD	URBAN	22083 - NAEF RD	11,150	6	0	0	2	3	1	5	9.70	4.81	9.17	<b>23.67</b>	Yes
105	21010 - OAK SHORE LN	URBAN	21025 - RIVER FOREST PL	220	1	0	0	0	0	0	2	3.45	19.71	0.33	<b>23.49</b>	No
106	32002 - ELIDA RD	RURAL	33018 - REDLAND RD	6,925	1	0	1	0	1	0	0	3.45	1.49	18.33	<b>23.28</b>	No
107	52010 - SAWTELL RD	RURAL	52014 - HERMANS RD	1,550	2	0	0	2	3	0	0	5.47	9.36	8.33	<b>23.17</b>	No
108	41007 - GRIBBLE RD	RURAL	41010 - OGLESBY RD	230	1	0	0	0	0	0	2	3.45	19.28	0.33	<b>23.07</b>	No
109	12154 - SUNNYSIDE RD	RURAL	P3108 - 187TH AVE	5,850	5	0	0	2	2	0	2	8.93	6.94	7.00	<b>22.86</b>	Yes
110	21368 - OATFIELD RD	URBAN	21118 - HOLLY AVE	10,900	7	0	0	2	1	0	10	10.36	5.55	6.67	<b>22.58</b>	Yes
111	32009 - HENRICI RD	RURAL	33001 - DILLMAN RD	1,725	2	0	0	3	2	0	0	5.47	8.68	8.33	<b>22.49</b>	No
112	21004 - COURTNEY AVE	URBAN	21368 - OATFIELD RD	13,450	6	0	0	0	5	0	2	9.70	4.11	8.67	<b>22.47</b>	Yes
113	12154 - SUNNYSIDE RD	URBAN	12056 - VALLEY VIEW TER	36,675	9	0	0	0	4	1	10	11.47	2.43	8.33	<b>22.24</b>	Yes
114	21371 - BOONES FERRY RD	URBAN	21034 - KNAUS RD	1,200	3	0	0	0	0	0	6	6.91	14.29	1.00	<b>22.20</b>	Yes
115	22228 - SPRINGWATER RD	RURAL	33018 - REDLAND RD	4,575	4	0	0	2	2	0	2	8.02	7.06	7.00	<b>22.08</b>	Yes
116	23036 - 242ND AVE	RURAL	13017 - BOHNA PARK RD	7,205	4	0	0	1	4	0	4	8.02	4.93	9.00	<b>21.95</b>	Yes
117	22400 - HARMONY RD	URBAN	P2031 - 80TH AVE	0	7	0	0	1	5	2	9	10.36	0.00	11.50	<b>21.86</b>	Yes
118	22003 - MATHER RD	URBAN	22536 - SUMMERS LN	2,895	4	0	0	0	2	0	4	8.02	9.81	4.00	<b>21.83</b>	Yes
119	14016 - HALEY RD	RURAL	14021 - 282ND AVE	9,100	3	0	0	4	3	1	0	6.91	3.16	11.67	<b>21.74</b>	Yes
120	12154 - SUNNYSIDE RD	RURAL	23050 - 172ND AVE	15,300	6	0	0	0	4	0	10	9.70	3.68	8.33	<b>21.71</b>	Yes
121	22004 - LAWNFIELD RD	URBAN	22230 - 82ND DR	26,950	9	0	0	1	2	0	12	11.47	3.20	7.00	<b>21.67</b>	Yes
122	22038 - JENNINGS AVE	URBAN	22040 - DAGMAR RD	7,275	1	0	1	0	0	0	0	3.45	1.42	16.67	<b>21.54</b>	No
123	14008 - HAUGLUM RD	RURAL	14011 - 362ND AVE	580	1	0	0	0	4	0	0	3.45	11.37	6.67	<b>21.49</b>	No
124	12154 - SUNNYSIDE RD	URBAN	22126 - 132ND AVE	24,850	6	0	0	2	3	2	5	9.70	2.40	9.17	<b>21.26</b>	Yes
125	35012 - RAINBOW RD	RURAL	34047 - GEORGE RD	280	1	0	0	0	0	0	2	3.45	17.43	0.33	<b>21.22</b>	No

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					Accidents	Fatal	A	B	C	Child	PDO					
126	26005 - SLEEPY HOLLOW DR	RURAL	P6004 - CHALET PL	325	1	0	0	1	0	0	0	3.45	16.08	1.67	<b>21.20</b>	No
127	21070 - ROETHE RD	URBAN	22232 - RIVER RD	7,125	6	0	0	0	2	0	6	9.70	6.86	4.33	<b>20.89</b>	Yes
128	22232 - RIVER RD	URBAN	21004 - COURTNEY AVE	10,275	6	0	0	0	3	1	6	9.70	5.14	6.00	<b>20.83</b>	Yes
129	12154 - SUNNYSIDE RD	RURAL	22007 - 152ND DR	17,875	6	0	0	0	4	0	7	9.70	3.21	7.83	<b>20.74</b>	Yes
130	22005 - 122ND AVE	URBAN	22536 - SUMMERS LN	10,125	4	0	0	4	1	0	4	8.02	3.70	9.00	<b>20.72</b>	Yes
131	25001 - LUSTED RD	RURAL	14010 - DODGE PARK BLVD	760	2	0	0	0	0	0	3	5.47	14.72	0.50	<b>20.70</b>	No
132	23019 - BAKERS FERRY RD	RURAL	23020 - GERBER RD	1,665	3	0	0	1	0	0	2	6.91	11.70	2.00	<b>20.60</b>	Yes
133	33018 - REDLAND RD	RURAL	22060 - HOLLY LN	11,550	7	0	0	2	0	0	9	10.36	5.30	4.83	<b>20.49</b>	Yes
134	13006 - 190TH DR	RURAL	P3016 - WOODED HILLS DR	2,250	4	0	0	0	0	0	5	8.02	11.60	0.83	<b>20.45</b>	Yes
135	22009 - JENNIFER ST	URBAN	22082 - EVELYN ST	18,450	5	0	0	2	3	0	3	8.93	2.66	8.83	<b>20.42</b>	Yes
136	13032 - 267TH AVE	RURAL	23048 - TELFORD RD	1,200	2	0	0	2	0	0	2	5.47	11.12	3.67	<b>20.26</b>	No
137	22021 - BRADLEY RD	RURAL	22641L - TRAIL RIDGE RD	920	1	0	0	0	5	0	0	3.45	8.29	8.33	<b>20.08</b>	No
138	12010 - 92ND AVE	URBAN	12001 - IDLEMAN RD	9,975	8	0	0	0	0	0	15	10.95	6.61	2.50	<b>20.05</b>	Yes