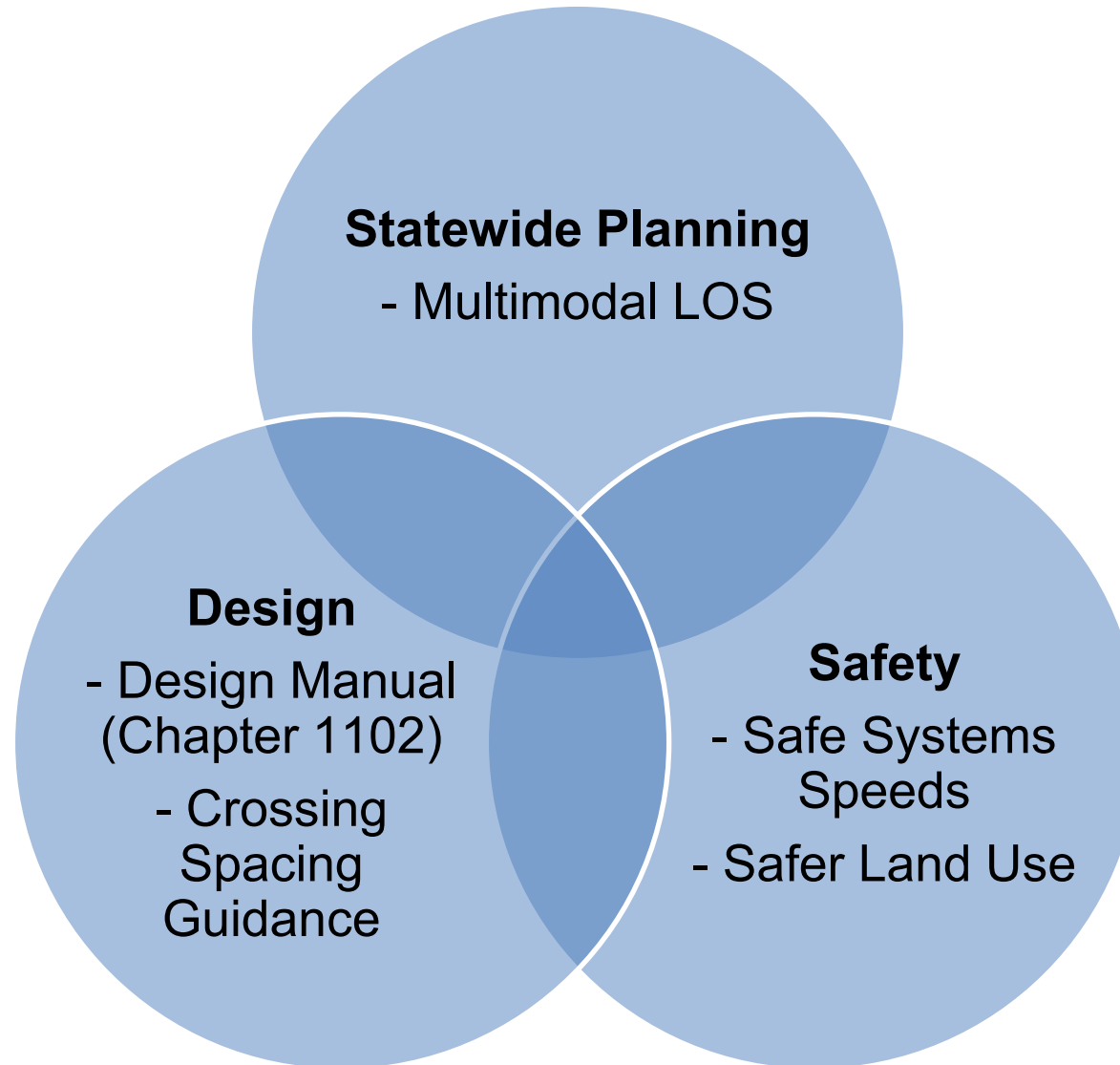


Developing a context classification for Safe Systems Speed setting on state highways

ITE Western District Annual Meeting

June 29, 2026

Brief origin story



Research backing

- 8 state DOTs, 2 NCHRP reports, 7 other peer-reviewed sources
- Most common factors to consider
 - Land use (commercial, residential, mixed-use, etc.)
 - Building/building area density
 - Building setbacks
 - Block size/intersection density
 - Building type/height
 - Population density
 - Parking
 - Job density

Data availability

- 8 state DOTs, 2 NCHRP reports, 7 other peer-reviewed sources
- Most common factors to consider
 - **Land use (commercial, residential, mixed-use, etc.)**
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 - **Job density**

Step 1: Calculated Classification

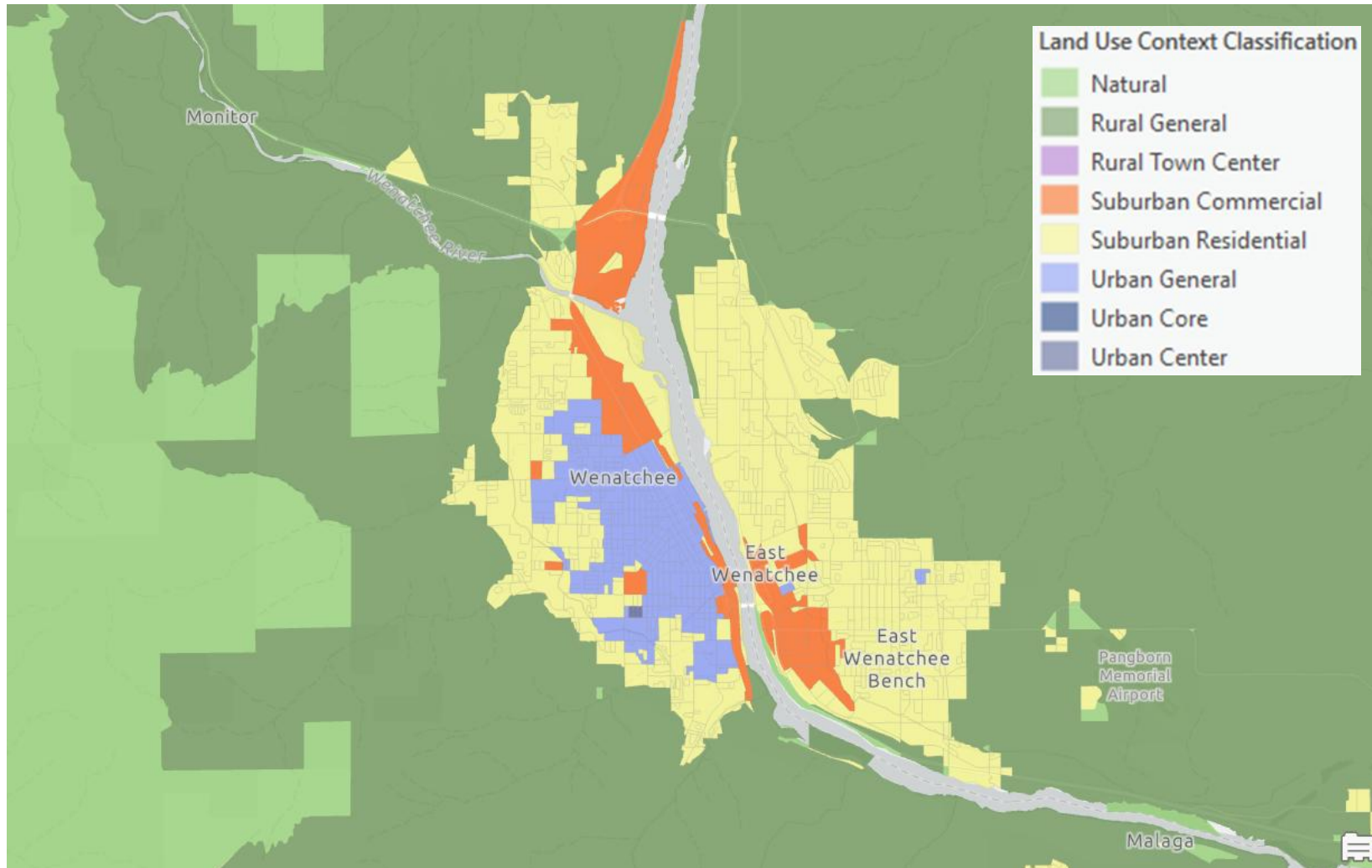
	Intersection density ¹	Population + job density	Land use proportion	City size
Natural	Less than 20 intersections per square mile.	Less than 2 people and jobs per acre.	There is more undeveloped land than residential, commercial, and agricultural land combined.	N/A
Rural general	Less than 20 intersections per square mile.	Less than 2 people and jobs per acre.	There is more residential, commercial, and agricultural land combined than undeveloped land, or at least 20% of the block is residential or commercial.	N/A
Suburban residential	At least 20 but less than 100 intersections per square mile.	Less than 10 jobs and people per acre.	No more than 12% of the block is commercial land use and more residential land use than commercial.	N/A
Suburban commercial	At least 20 but less than 100 intersections per square mile.	Less than 10 jobs and people per acre.	More commercial land use than residential in the block, or at least 12% of the block is commercial land use.	N/A
Rural town center	100 or more intersections per square mile.	No minimum density requirement.	No land use requirements but surrounded by rural land.	At least 0.25 miles from urbanized areas of 10,000 people or more.
Urban general	100 or more intersections per square mile. ²	10 or more people and jobs per acre, but no more than 40 people and jobs per acre.	No land use requirements. ³	N/A
Urban center	100 or more intersections per square mile. ²	40 or more people and jobs per acre, but no more than 30 people and 45 jobs per acre.	No land use requirements.	N/A
Urban core	100 or more intersections per square mile. ²	More than 30 people and 45 jobs per acre, or more than 150 people and jobs per acre.	No land use requirements.	N/A

¹ Each block is buffered by 0.25 miles, then the density of intersections is measured within that area.

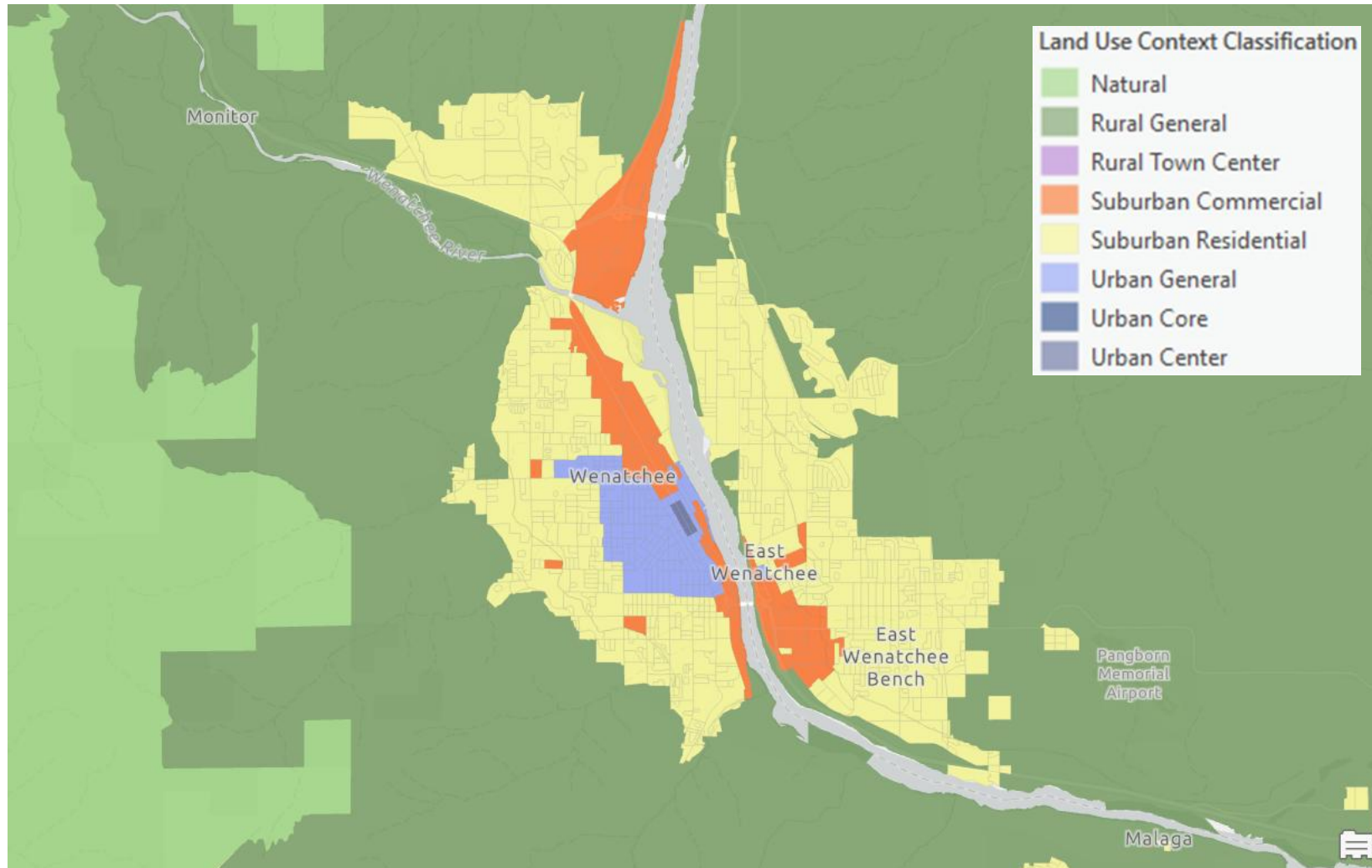
Step 2: Manual Cleaning Process

- Thresholds are absolute – the real world is squishy and complex
- Most common factors to consider
 - **Land use (commercial, residential, mixed-use, etc.)**
 - Building/building area density
 - Building setbacks
 - **Block size/intersection density**
 - Building type/height
 - **Population density**
 - Parking
 - **Job density**

Step 2: Manual Cleaning Process

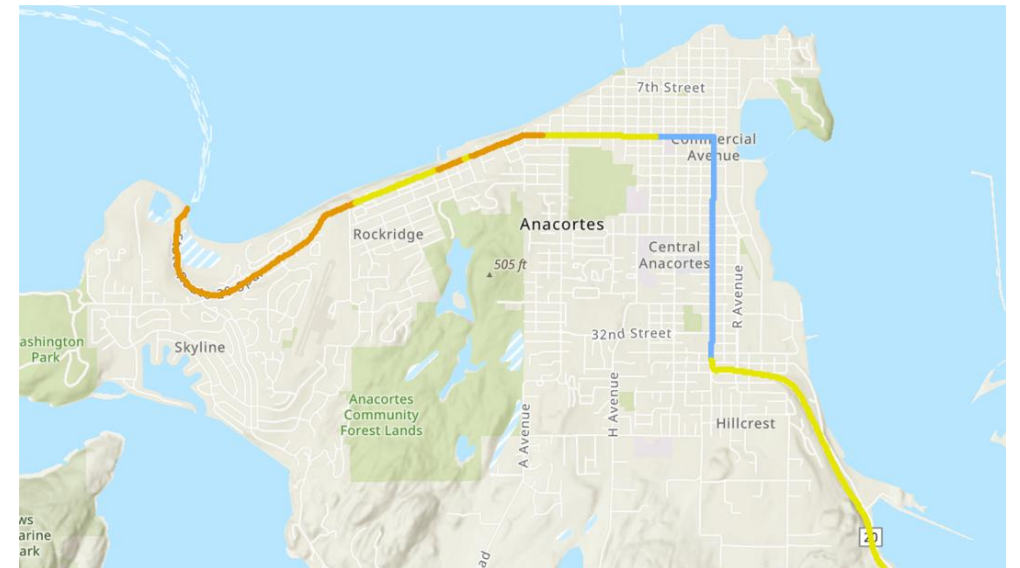
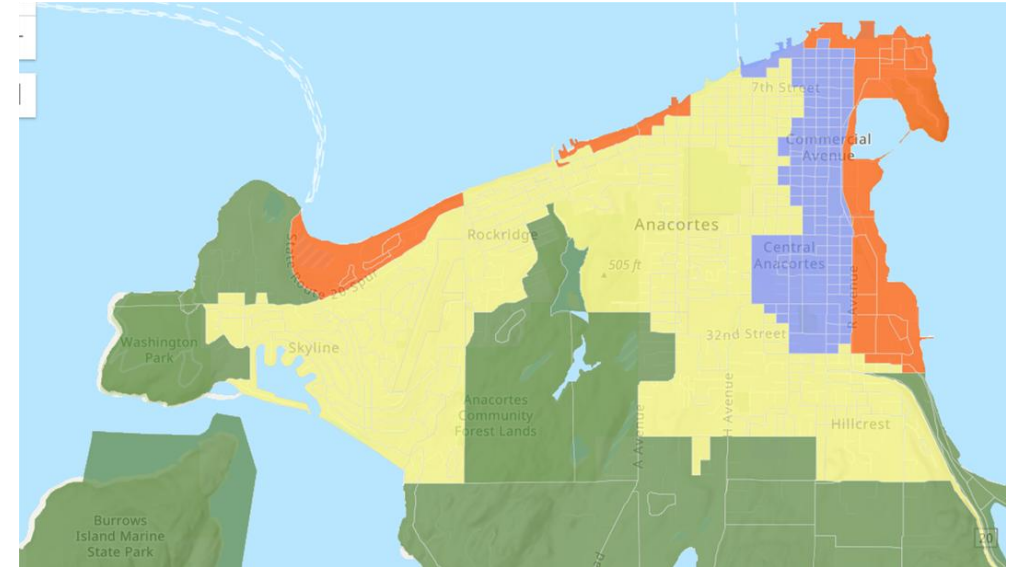


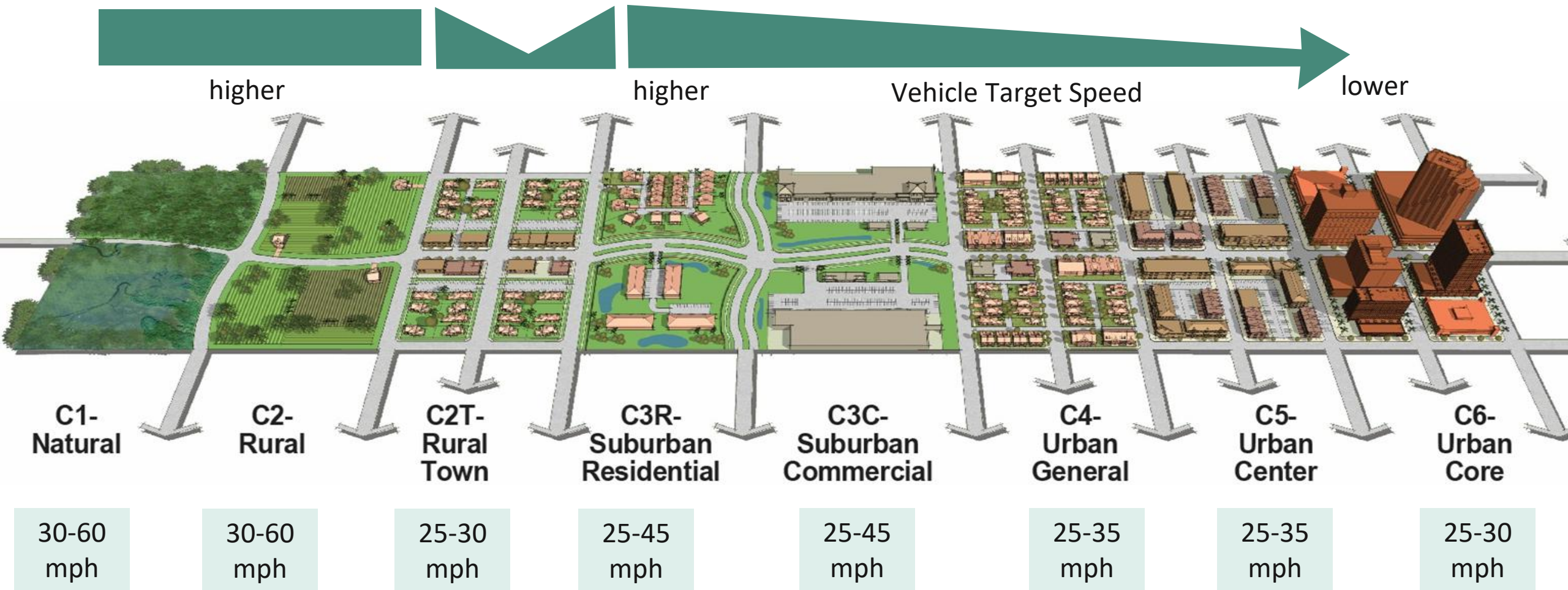
Step 2: Manual Cleaning Process



Future steps: testing & deployment

- Testing with internal and external staff involved in MMLOS and Design topics
- Revised product released with WSDOT Design Manual updates this fall
- Still in development
 - Long-term stewardship plan
 - Segment-based product





Design Speed by Context Classification

Safe System Speed
(Account for VRUs at
intersections)

Safe System Speed (Mixed environment)

Safe System Speed (VRUs expected)

Draft Default Safe System Speeds

	Natural	Rural	Rural Town Center	Suburban Residential	Suburban Commercial	Urban General	Urban Center	Urban Core
Freeways	70	70	60	60	60	60	60	60
Principal Arterials	50	60	25	30	30	30	30	25
Minor Arterials	40	60	25	30	30	30	25	25
Collectors	40	40	20	20	30	20	20	20
Local	20	20	20	20	20	20	20	20

Draft

Exhibit 1103-5 Speed Management Strategies

		Context Classification																																							
		Natural					Rural General					Rural Town					Suburban Residential					Suburban Commercial					Urban General					Urban Center					Urban Core				
		70 mph					70 mph					60 mph					60 mph					60 mph					60 mph					60 mph					60 mph				
Freeways	6	7			5	6	7			5	6	7			5	6	7			5	6	7			5	6	7			5	6	7			5						
		17					17					17					17					17					17					17									
			23					23					23					23					23					23					23								
Principal Arterials - Expressway, etc.	50 mph					60 mph					25 mph					30 mph					30 mph					30 mph					25 mph					25 mph					
		7	8	9	4	5	6	7	8	9	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5				
	11				15					13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15				
	21		17		20		17		18	19	20		16	17	18	19	20	16	17	18	19	20	16	17	18	19	20	16	17	18	19	20	16	17	18	19	20				
Minor Arterials																																									
		3*	4	5			3*	4	5			1	2	3	4	5	1	2	3	4	5		2	3	4	5	1	2	3	4	5	1	2	3	4	5					
	6	7	8	9	10	6	7	8	9	10		7	8		10		7	8		10		7	8		10		7	8		10		7	8		10						
	11	12	13	14	15	11	12	13	14	15		11	12	13	14	15		11	12	13	14	15		11	12	13	14	15		11	12	13	14	15							
	16	17	18	19	20	16	17	18	19	20		16	17	18	19	20		16	17	18	19	20		16	17	18	19	20		16	17	18	19	20							
	21	22	23	24	25	21		23	24	25		21	22	23	24	25		21	22	23	24	25		21	22	23	24	25		21	22	23	24	25							
Collectors	26*	27*				26*	27*					26	27				26	27					26	27				26	27				26	27							
	40 mph					40 mph					20 mph					20 mph					30 mph					20 mph					20 mph					20 mph					
			3*	4	5			3*	4	5			2	3	4	5	1	2	3	4	5		2	3	4	5		2	3	4	5		2	3	4	5					
			7	8	9			7	8	9			7	8		10		7	8		10		7	8		10		7	8		10		7	8		10					
			12	13	14	15			12	13	14	15		11	12	13	14	15		11	12	13	14	15		11	12	13	14	15		11	12	13	14	15					
Local																																									

ID	Tool	Cost		Maintainability	ID	Tool	Cost		Maintainability	ID	Tool	Cost		Maintainability
		Initial	Ongoing				Initial	Ongoing				Initial	Ongoing	
1	Neighborhood Traffic Circle	Low	Low	●	11	Traffic Calming Chicanes per FHWA Define	Medium	None	●	21	Roadway Section Reallocation	Medium	None	●
2	Roundabout	Low-Med	Low	●	12	Reduced Turn Radii	Med-High	None	●	22	On-Street Parking	Low	None	●
3	Speed Humps/Cushions	Low	None	●	13	Removing Right Turn Lanes	Medium	None	●	23	Landscaping	High	High	○
4	Community Entrance Markers	Low-High	Low-High	○-●	14	Protected Intersections	High	Low	○	24	Public Art	Low	Low	●
5	Lane Narrowing	Low	None	●	15	Photo Enforcement	Low-Med	High	N/A	25	Street furniture	Low	Low	N/A
6	Optical Speed Markings	Low	Low	○	16	Signal progression	Low	Low-Med	●	26	Raised Crosswalks/Tables	Medium	None	●
7	Wider Edge Line	Low-Med	None	●	17	Speed Feedback Signs	Low-Med	Low-High	●	27	Raised Intersections	High	None	●
8	Transverse Pavement Markings	Low-Med	Low	○	18	Bulb-Outs	Med-High	Low	○					
9	Transverse Rumble Strips	Low-Med	None	○	19	Gateways - "double bulbout" pinch point	Medium	Low	○					
10	Lateral Shift (aka Horizontal Lane Shifts)	Low-Med	None	●	20	Refuge Islands	Medium	Low	●					

○ = Very Hard

● = Easy

Concept for incorporation of severity into speed setting

Start with understanding the context and function of the roadway (including a new movement/place score)

Explore user composition, including the presence of vulnerable road users

Incorporate crash history and severity patterns

Consider levels of protection for different users

Establish injury-severity-based target speed ranges aligned with Safe System principles

Get in touch

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