

TCB UNDERPASS



Current Connection

To K-State & Downtown
(via Juliette) ←



To Northview

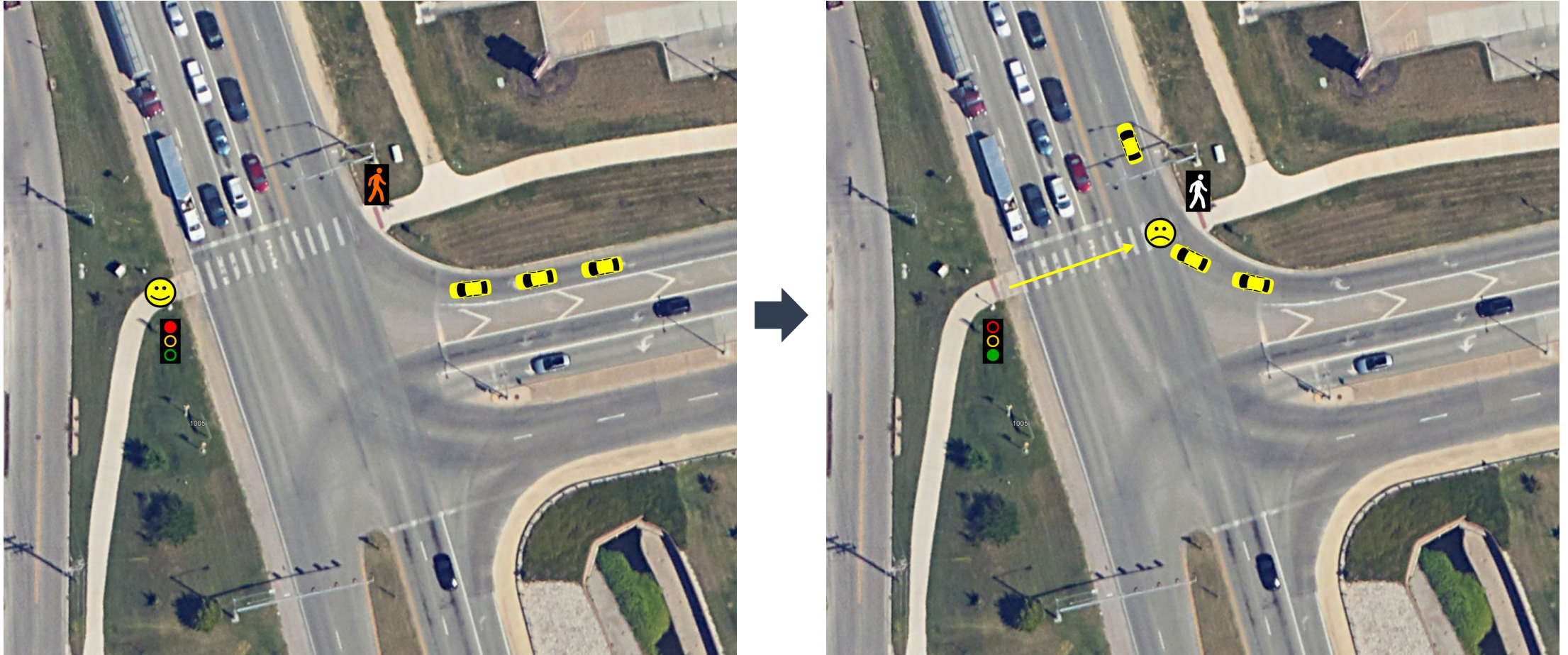
To Linear Trail

The Problem

McCall

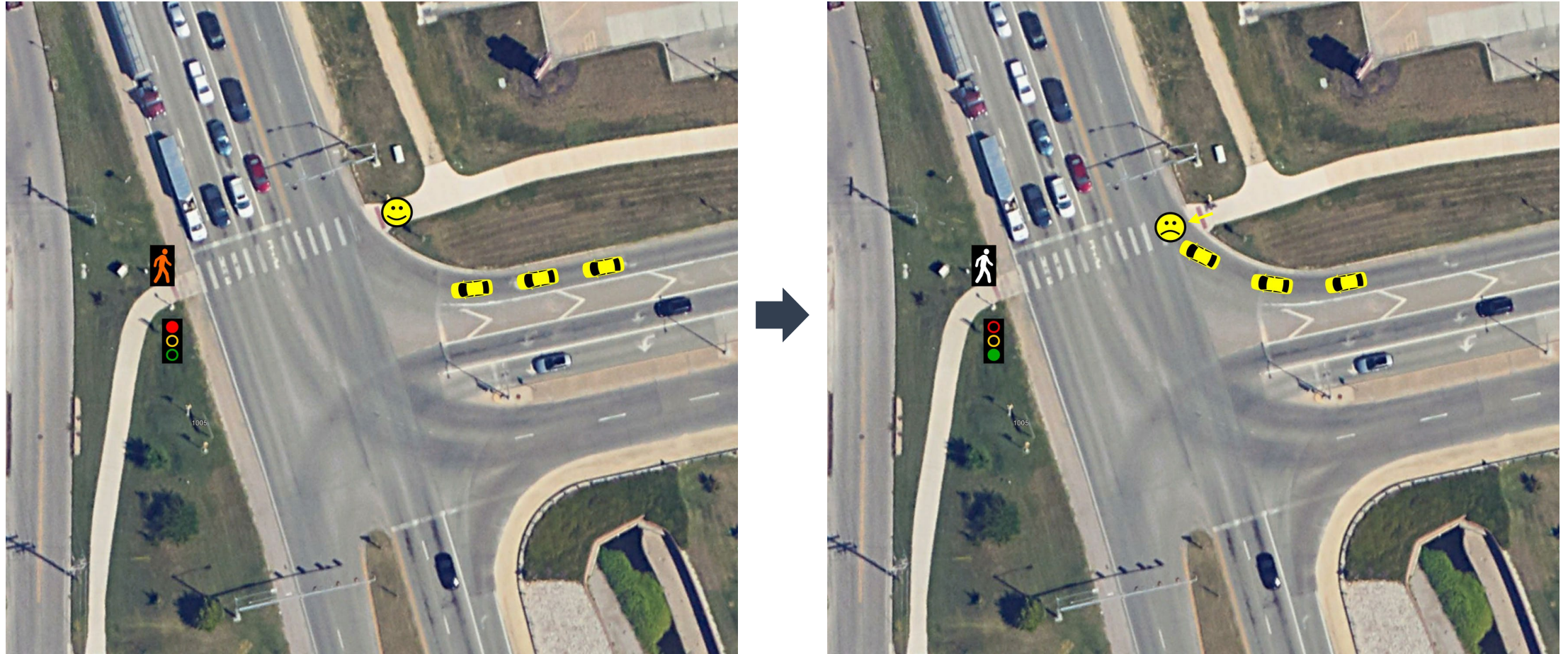
To Businesses

The Problem: 1



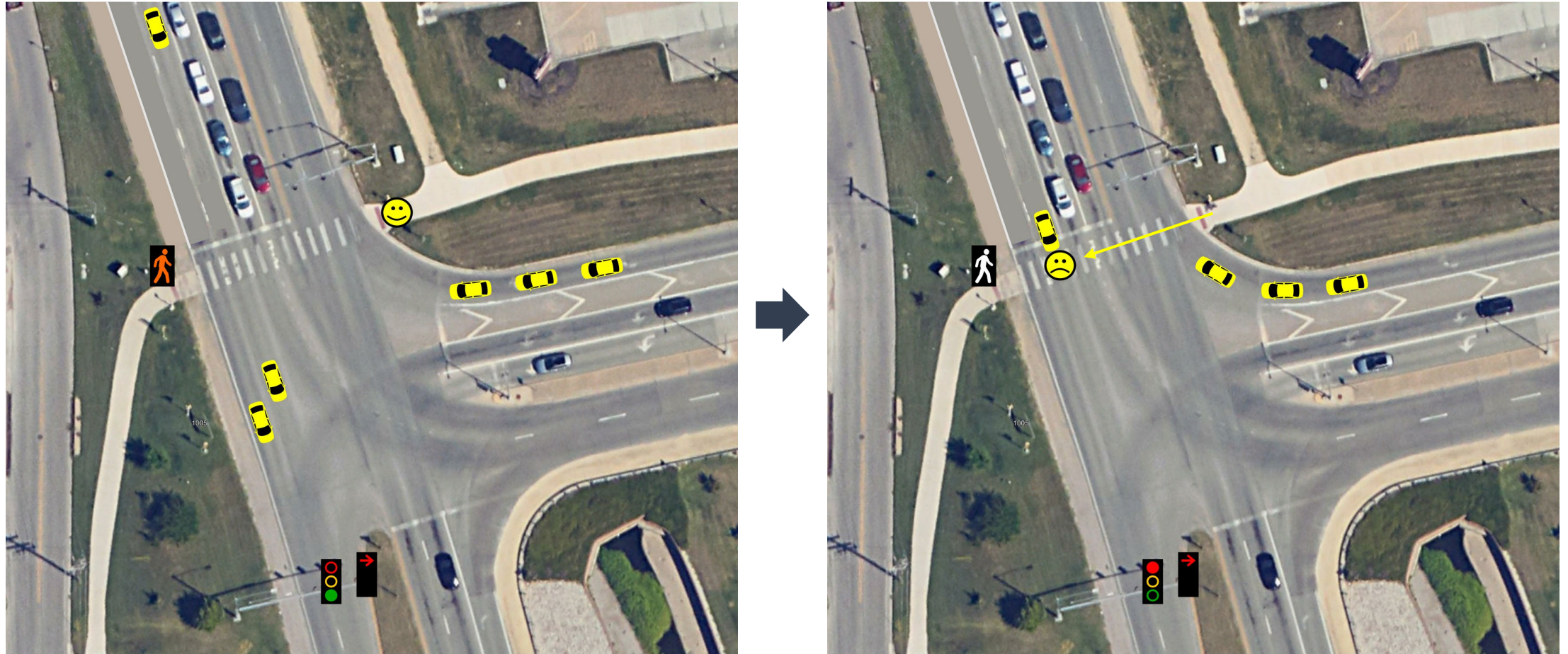
1st right turning vehicle sees pedestrian waiting, but when light turns green they go because they can be through the crosswalk before the pedestrian. However, the 2nd and 3rd vehicles CANNOT see the pedestrian due to the 1st vehicle, and now they are going 10-15mph and turn into the pedestrian.

The Problem: 2



Turning vehicles see Green Light and DO NOT look for pedestrian (despite Pedestrian Walking signal), and turn into pedestrian.

The Problem: 3



TCB vehicles run the red light, and this vehicle is NOT visible to the pedestrian b/c of the left turning vehicles.
This has been relayed to MPO & City staff as a concern by those who have almost been hit by vehicles.

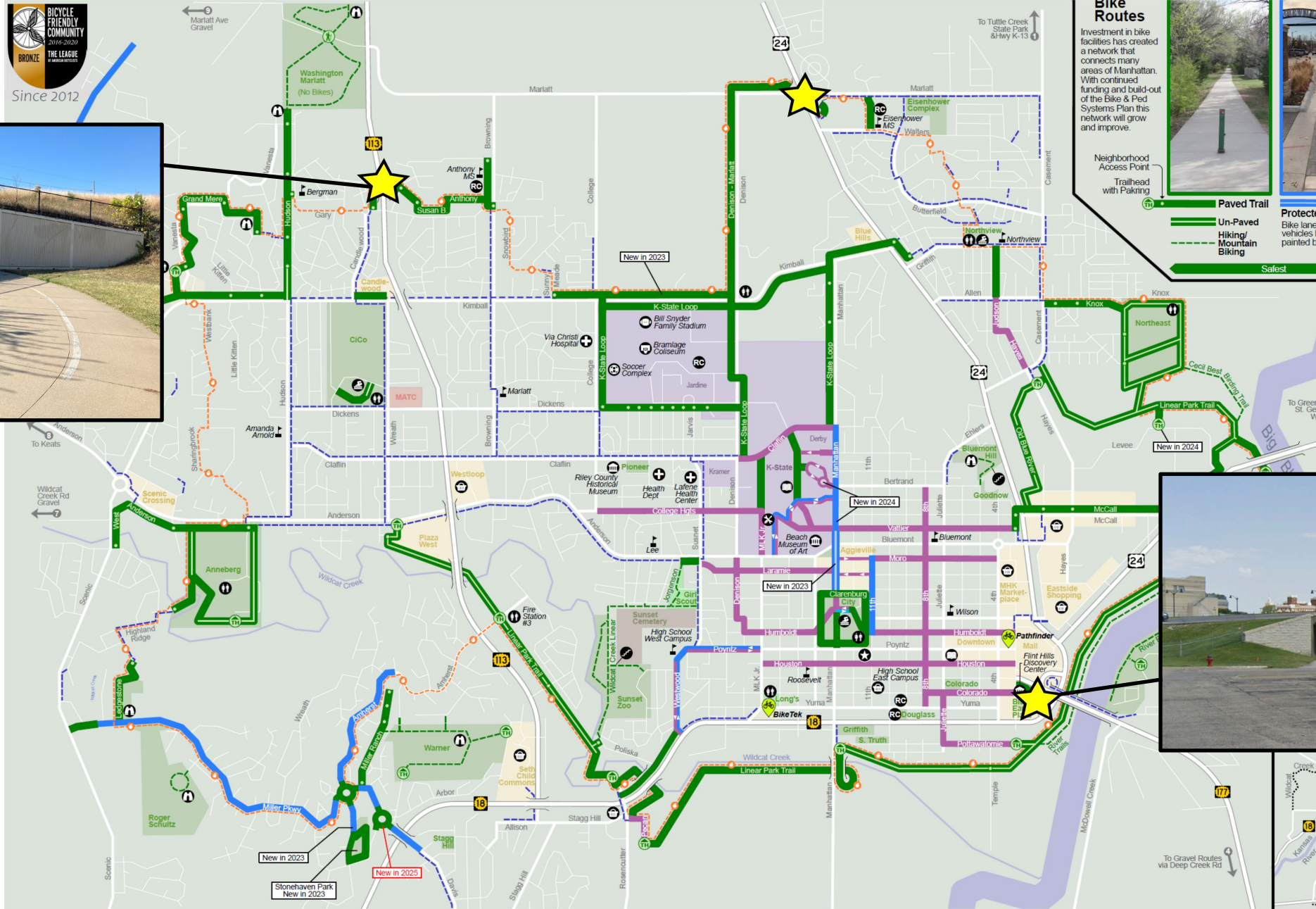
Needed Connection

Solutions		The Problem: 1	The Problem: 2	The Problem: 3
At Grade	Traffic Signals	X	X	X
	Signage	X	X	X
Underpass		✓	✓	✓

The problems at the intersection of TCB & McCall, cannot be solved by changes to traffic signals or signage. The solution is separation; an underpass. Use the existing topography to create the space needed for an underpass.

Example Underpasses

MHK already has 3 trail underpasses. Two of them (K-113 & Union Depot) are perfect examples of the proposed US-24 underpass.



* See last slides for details of existing example underpasses in Manhattan

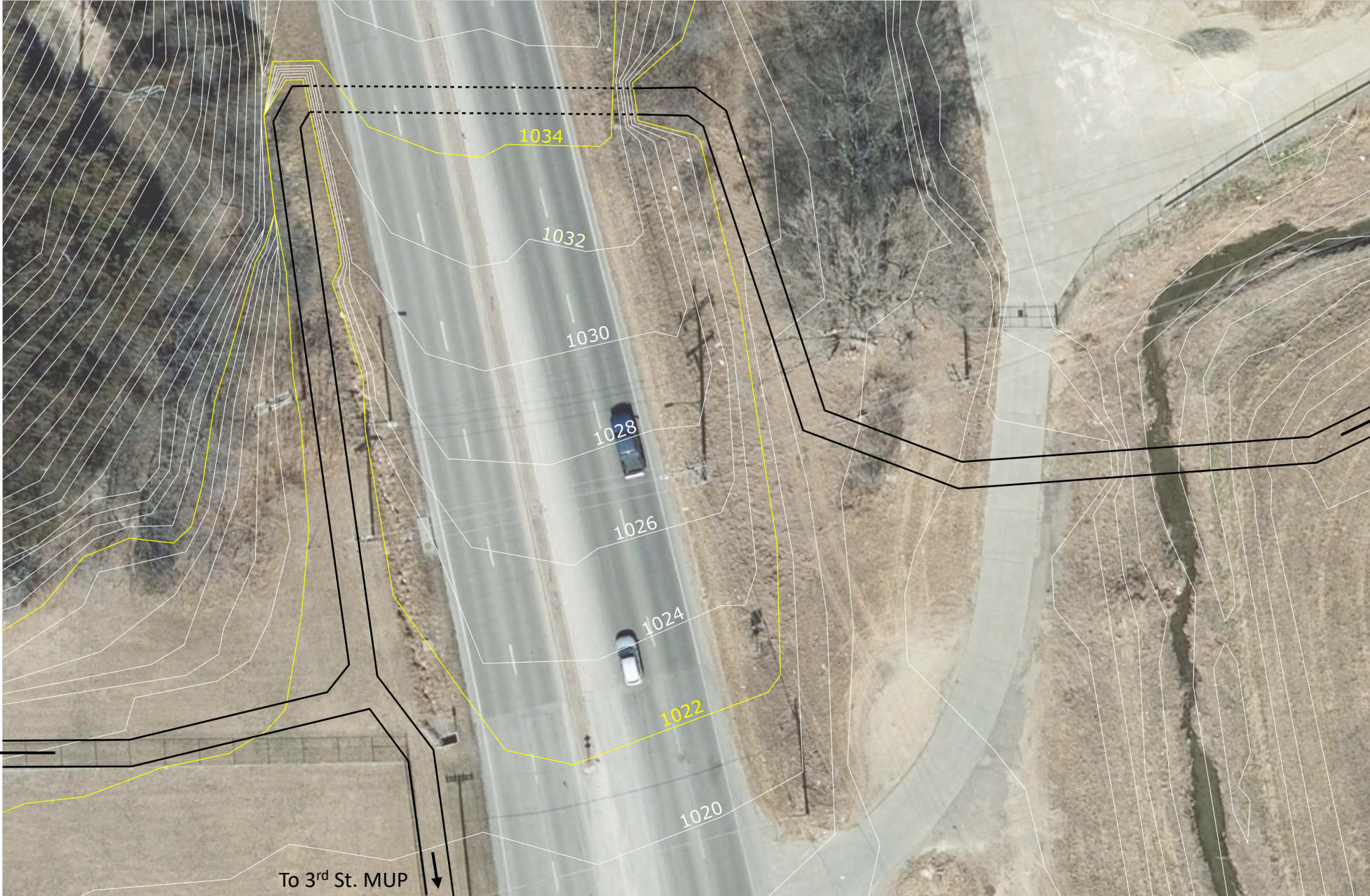
Proposed Connection



Proposed Connection: Current Elevation Contours



Proposed Connection



To 5th & Thurston
(K-State)

To 3rd St. MUP

To OBRT

Proposed Connection

Connecting to the Old Blue River Trail (OBRT) and extending west along the top of the existing berm/access road



Proposed Connection

From the berm/access road, a small bike/ped bridge would cross the ditch



Proposed Connection

From the bike/ped bridge, the trail would cross the lime pits access road, before turning to parallel US-24



Proposed Connection

With some regrading, the trail would parallel US-24 north until enough elevation is gained to provide room for the underpass



Proposed Connection



Proposed Connection

On the west side of US-24 the trail would lie between two small retaining walls

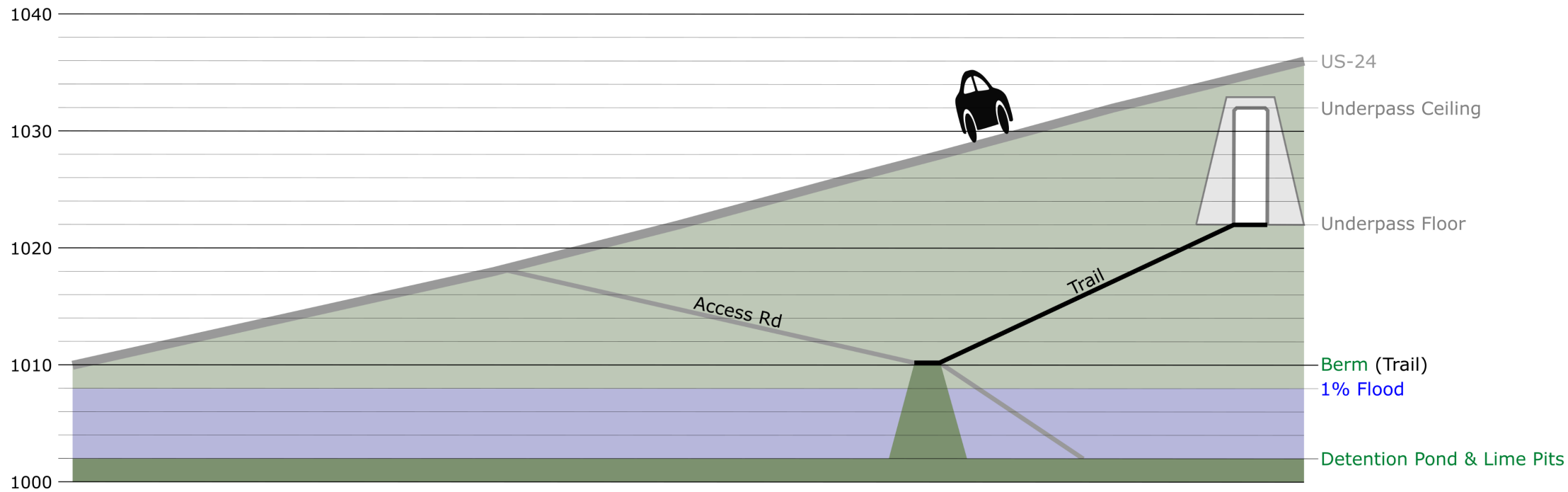


Flood Zone

Utilizing the detention pond berm and a pedestrian bridge, the path would stay above the 1% flood zone.



Separation: Use the Topography



The existing topography creates an opportunity to leverage the elevation gain as US-24 rises to the north. Combining this elevation rise, with the existing above 1% flood zone berm and access road to the east, creates space to install an underpass.

NOTE: This diagram is not to scale horizontally.

Proposed Connection: Distances

	Current			Proposed Underpass		
	Miles	Time: Biking	Time: Walking	Miles	Time: Biking	Time: Walking
 →  Northview → K-STATE	1.7	10 mins.	34 mins.	1.6	10 mins.	32 mins.
 →  Northview → HyVee	1.2	7 mins.	24 mins.	1.3	8 mins.	26 mins.
 →  Northview → Downtown Manhattan	2.1	13 mins.	42 mins.	2.1	13 mins.	42 mins.
 →  K-STATE → Walmart	1.2	7 mins.	24 mins.	1.7	10 mins.	34 mins.

Minimal changes to existing distances and times. Combined with significant increase in safety, stress, and ease of use, the underpass is a superior option.

Example: Seth Child Tunnel



Example: Seth Child Tunnel

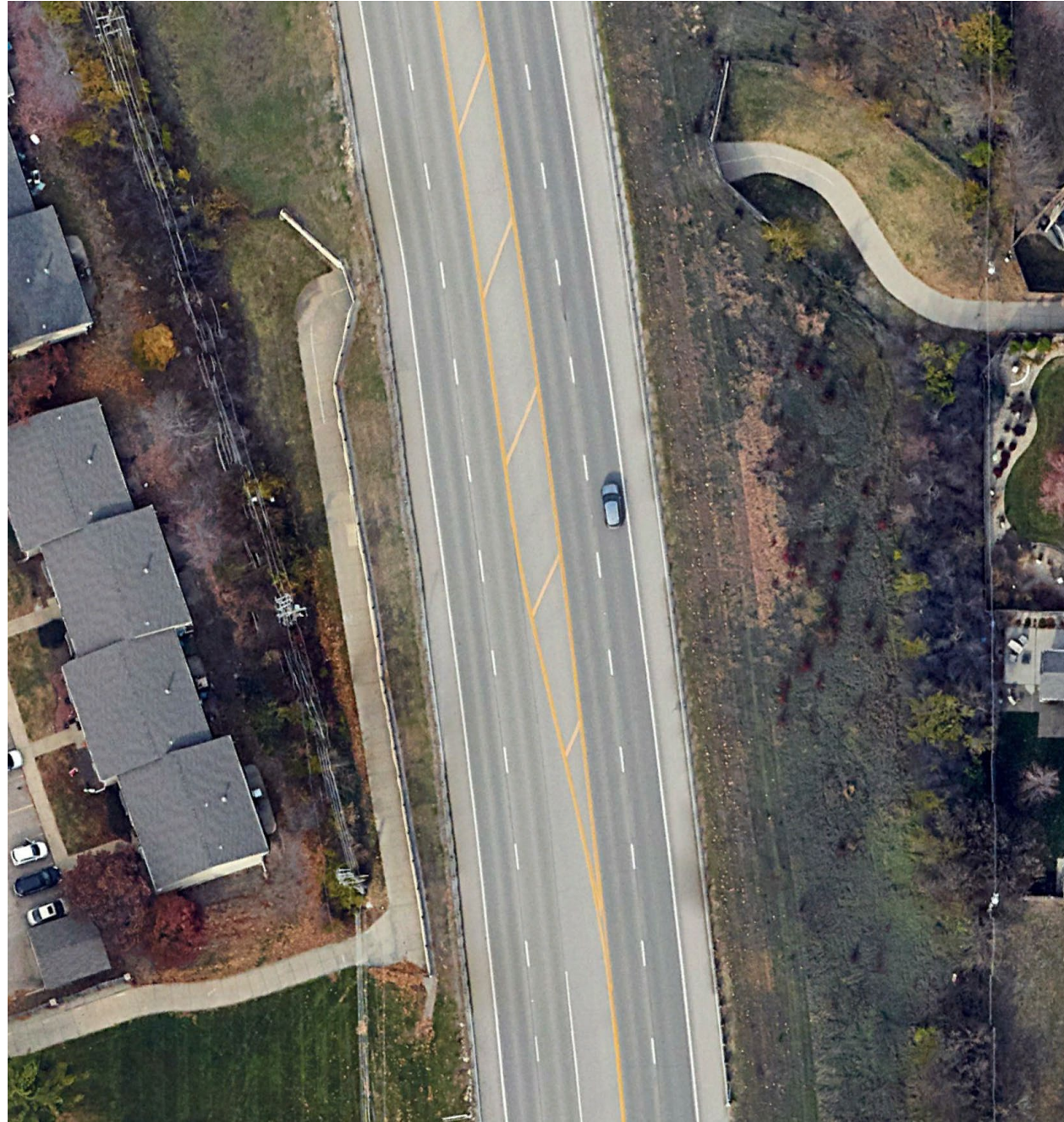


Example: Seth Child Tunnel

Similarities:

Seth Child Tunnel & Proposed TCB Tunnel

- tunnel exit on the west side of the highway is close (10ft) to the roadway/shoulder
- MUP parallels the highway along a retaining wall
- Both tunnels run north along the highway to where the elevation gain of the highway permits a tunnel (aka, the hill elevation is used to create room for the tunnel)
- Roadway only ~2ft above tunnel



Example: Union Depot Tunnel



Example: Union Depot Tunnel

Similarities:

Seth Child Tunnel & Proposed TCB Tunnel

- 12ft of elevation between MUP in tunnel & roadway
- Roadway only 1-2 feet above tunnel
- Constructed after the completion of the roadway (retrofit to create a connection)



Example: Union Depot Tunnel

