



# Alaska Department of Transportation & Public Facilities

Alaska/Richardson/Steese Highways Corridor Action Plan  
*Transportation Advisory Committee Work Session*  
*July 26, 2023*

***School Bus Stop Analysis Module*** by Kinney Engineering, LLC

Our mission is to *Keep Alaska Moving* through service and infrastructure.

# School Bus Stop Analysis Module

1. **Background**
2. **Data Collection**
3. **Analysis**
4. **Results by School District**
5. **Potential Mitigation Strategies**
6. **Q&A (time permitting)**



# School Bus Stop Analysis Module

1. **Background**
2. Data Collection
3. Analysis
4. Results by School District
5. Potential Mitigation Strategies
6. Q&A (time permitting)



# School Bus Stop Analysis Module

## State and Federal Regulations

- NHTSA National Safety Program Guideline No. 17
- Alaska Administrative Code 13 AAC 04.245
- Alaska Statute Sec. 14.09.030. School buses
- Alaska Statute Sec. 14.30.347. Transportation of children with disabilities
- Alaska Statute Sec. 28.35.145 Overtaking and passing school bus

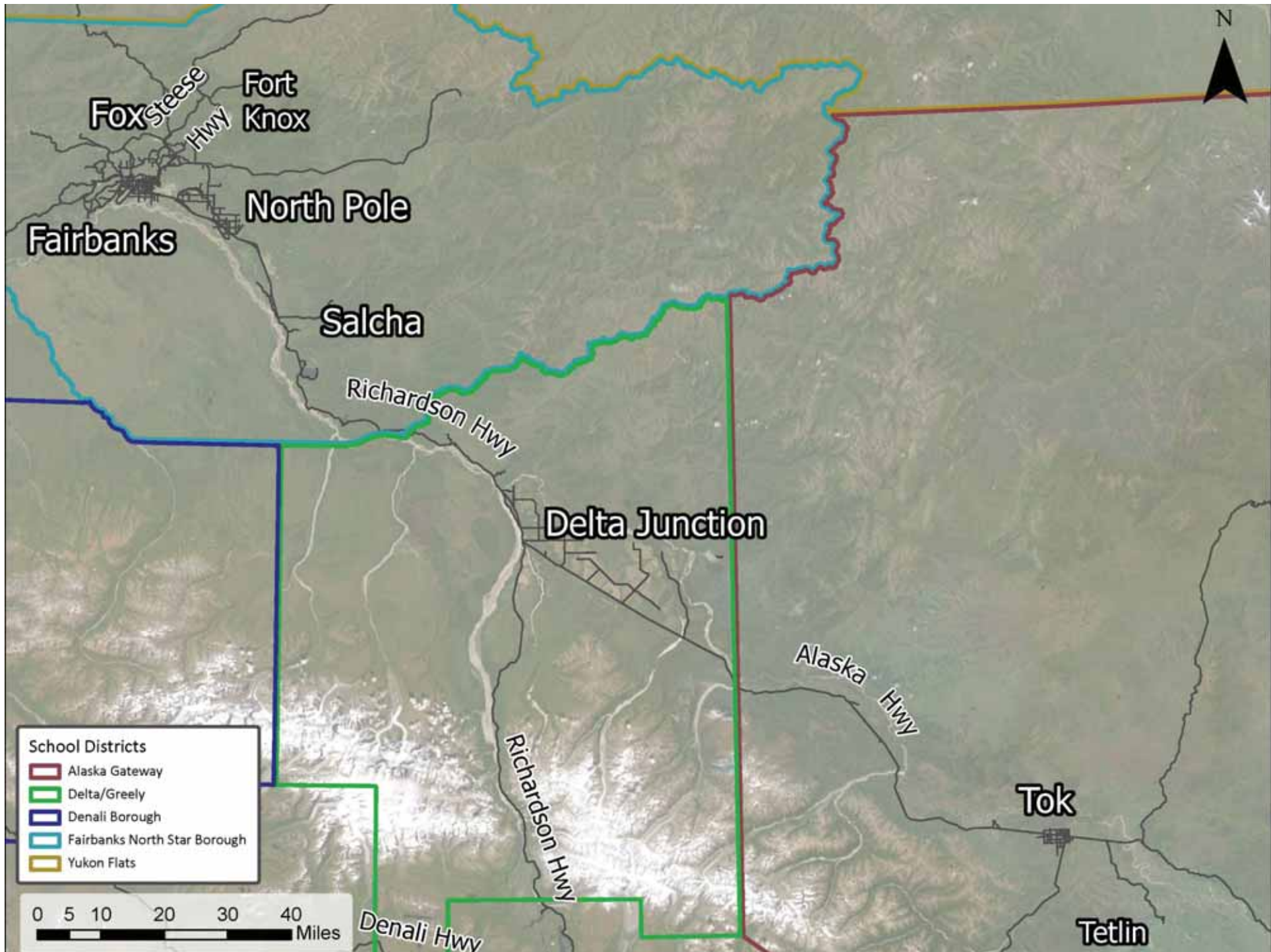


# School Bus Stop Analysis Module

## State and Federal Regulations

- State of Alaska follows national guidelines on transporting pupils (NHTSA National Safety Program Guideline No. 17)
- Minimum requirements for Alaska school bus vehicles (13 AAC 04.245)
  - Must be painted National School Bus Chrome Yellow
  - Must display "SCHOOL BUS" and "UNLAWFUL TO PASS WHEN RED LIGHTS FLASH" text
  - Must be equipped with a stop arm if rated capacity is 24 or more students
  - 2x yearly school bus inspection
  - Tire chains required to be carried, drop chains optional
  - Roof mounted strobe light





Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# School Districts along the A/R/S Corridor



Stretch Blackard,  
Owner of Tok  
Transportation

Patrick Mayer,  
AGSD Superintendent



Christie Hanson,  
Location Manager  
for First Student, Inc



Ryan Hinton,  
Director of Transportation

Dr. Luke Meinert,  
FNSBSD Superintendent

# School Bus Stop Analysis Module

1. Background
- 2. Data Collection**
3. Analysis
4. Results by School District
5. Potential Mitigation Strategies
6. Q&A (time permitting)





# School Bus Stop Analysis Module

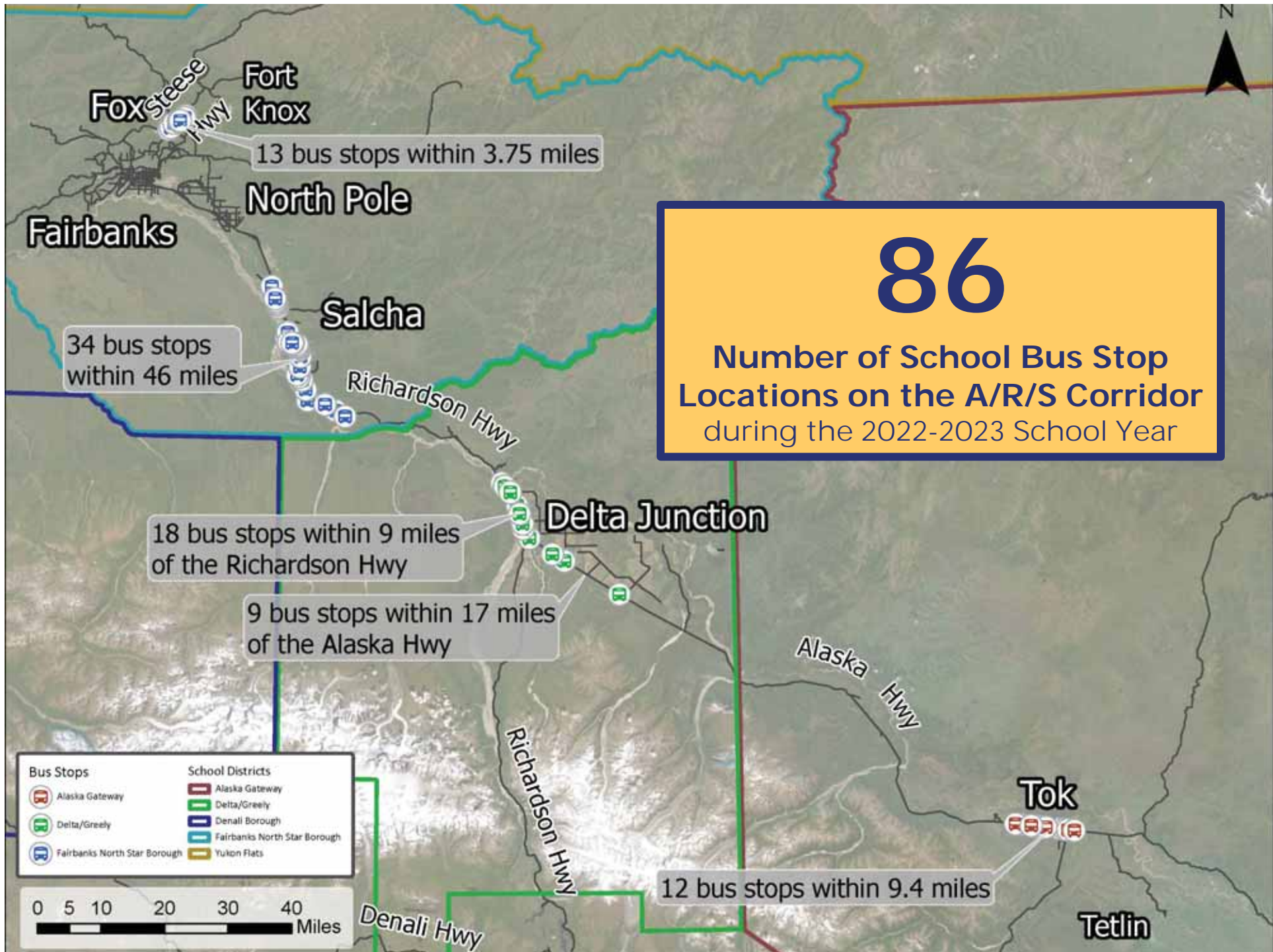
## 2. Data Collection

### i. Solicit bus stop locations

(data provided in Excel, kmz formats)

### ii. Interview representatives from each school district





# Alaska Gateway SD Bus Stop Locations

## AGSD: 12 School Bus Stop Locations on the A/R/S Corridor

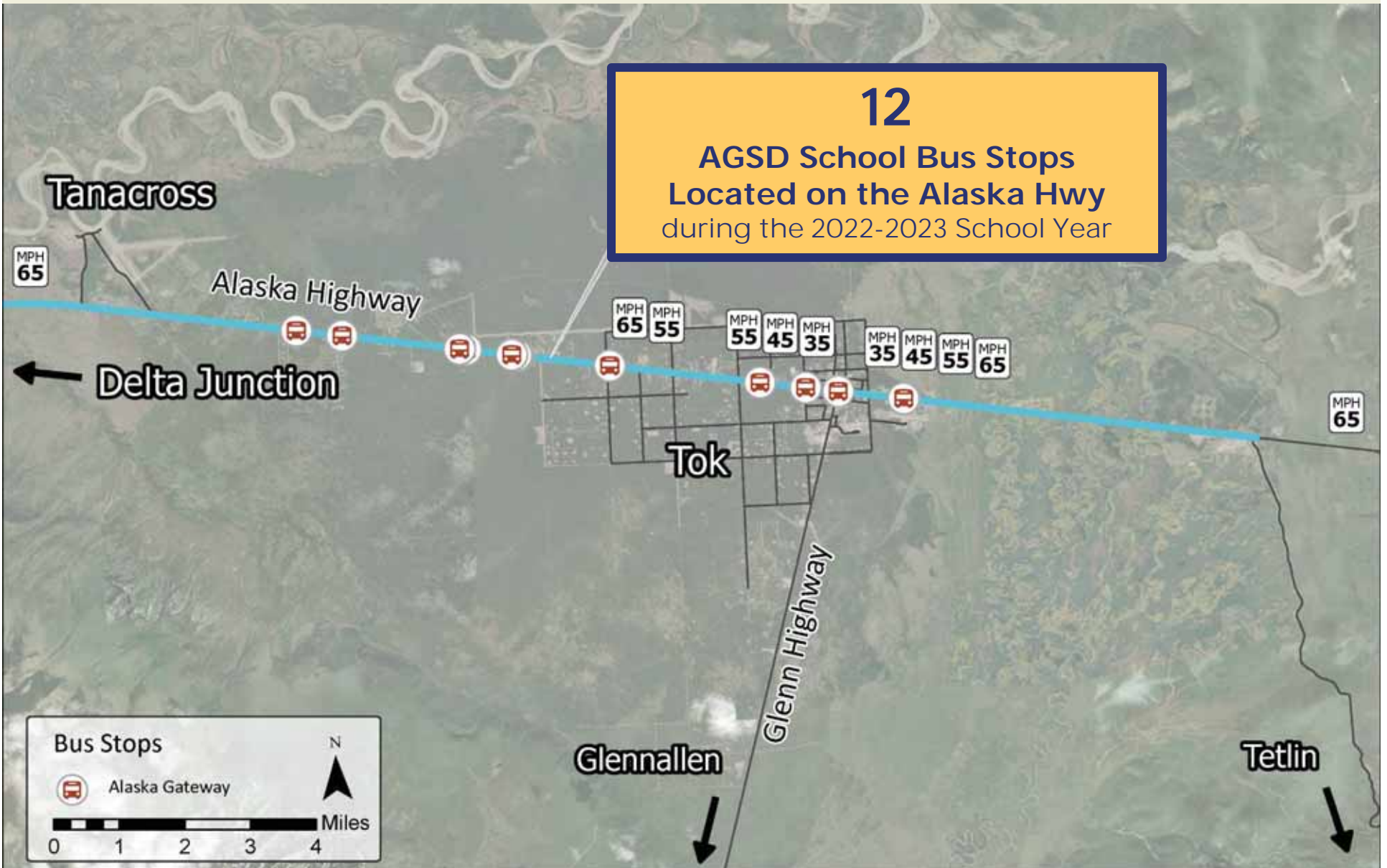
2022-2023 Bus Stop Location	Highway	Milepost
Alaska Hwy MP 1319.13	Alaska	1313.2
Alaska Hwy MP 1319.2	Alaska	1314.2
Alaska Hwy MP 1319.9	Alaska	1314.7
Alaska Hwy MP 1320	Alaska	1315.4
Alaska Hwy MP 1321.8	Alaska	1317.7
Alaska Hwy MP 1319.1	Alaska	1319.1
Alaska Hwy MP 1319.13	Alaska	1319.13
Alaska Hwy MP 1319.2	Alaska	1319.2
Alaska Hwy MP 1319.9	Alaska	1319.9
Alaska Hwy MP 1320	Alaska	1320.0
Alaska Hwy MP 1321.8	Alaska	1321.8
Alaska Hwy MP 1322.5	Alaska	1322.5

**12 school bus stops on  
the Alaska Highway**



Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Alaska Gateway SD Bus Stop Locations



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Locations

## DGSD: 27 School Bus Stop Locations on the A/R/S Corridor

2022-2023 Bus Stop Location	Highway	Milepost
Silver Fox	Alaska	1404.2
Alaska Hwy @ Fleet Street	Alaska	1414.3
Alaska Hwy @ Theisen	Alaska	1414.4
Alaska Hwy MP 1414.6	Alaska	1414.6
Alaska Hwy MP 1414.7	Alaska	1414.7
Alaska Hwy @ Dorhorst Rd	Alaska	1414.9
Alaska Hwy MP 1416.5	Alaska	1416.5
Bergstad Trailer Crt	Alaska	1421.0
Med Clinic on Ak Hwy	Alaska	1421.3
DOT pull out	Richardson	267.0
Green Acres	Richardson	267.8
Richardson Hwy Apartments	Richardson	268.8
2880 Richardson Hwy	Richardson	269.3
3146 Richardson Hwy	Richardson	270.0
3370 Richardson Hwy	Richardson	270.2
3720 Richardson Hwy	Richardson	270.3
639 Richardson Hwy	Richardson	270.4
3636 Richardson Hwy	Richardson	270.8
Birch Valley Duplex	Richardson	270.9
4840 Richardson Hwy	Richardson	273.2
Old Gas station stop at Bridge	Richardson	275.3
McAfee Dr	Richardson	273.6
Probert St	Richardson	272.7
Kreb Lane	Richardson	274.0
Sandra St	Richardson	272.0
Rebecca Lane	Richardson	271.9
Spengler Rd	Richardson	269.4

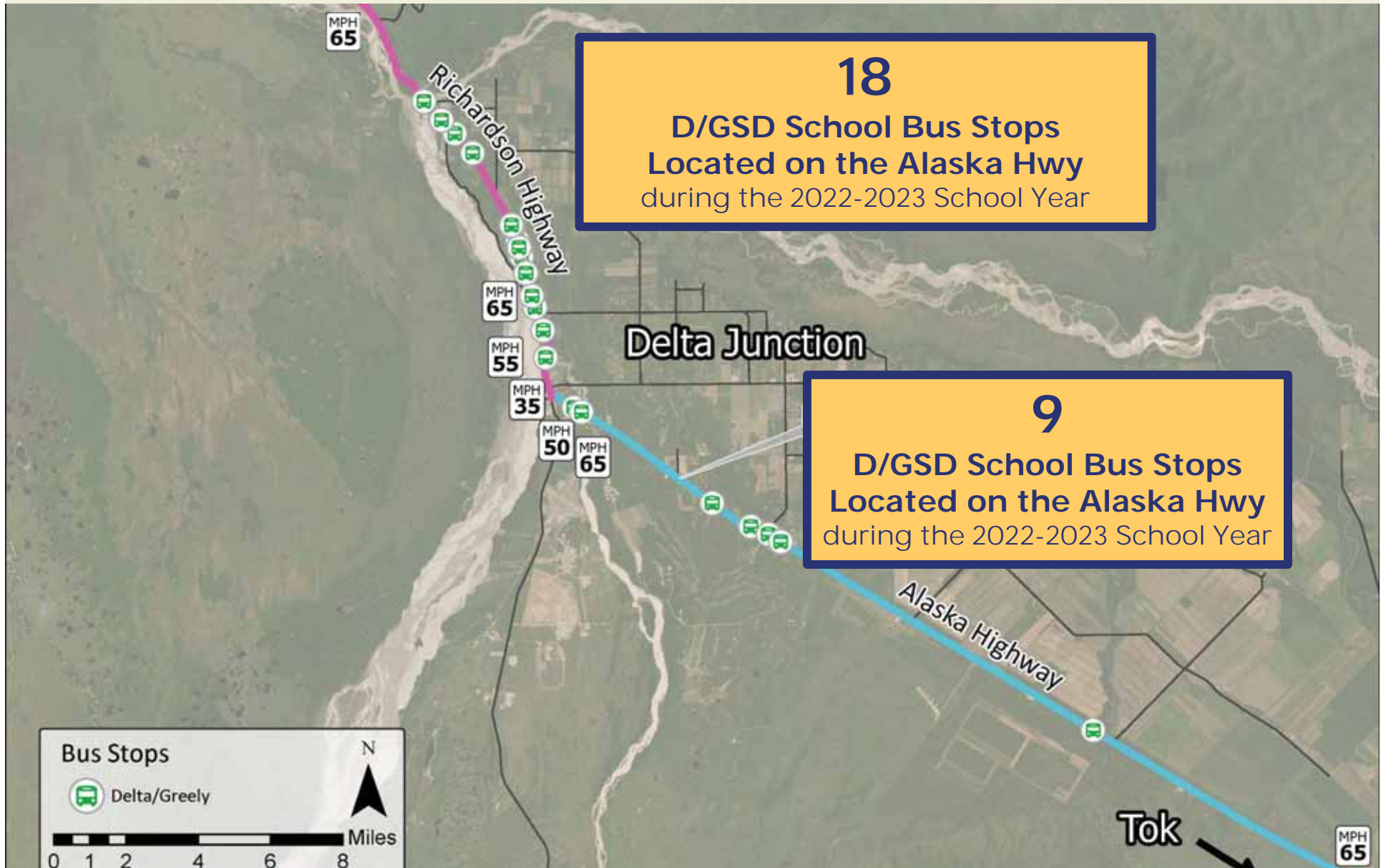
9 school bus stops  
on the Alaska Highway

18 school bus stops  
on the Richardson Highway



Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Locations



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# FNSBSD Bus Stop Locations

## FNSBSD: 47 School Bus Stop Locations on the A/R/S Corridor

### 34 School Bus Stops on the Richardson Highway

2022-2023 Bus Stop Location	Highway	Milepost	2022-2023 Bus Stop Location	Highway	Milepost
BIRCH LAKE PULLOUT No Intersection	Richardson	306.0	8835 Richardson Hwy	Richardson	323.8
12005 Richardson Hwy	Richardson	307.9	8810 Richardson Hwy/Walts rd	Richardson	323.9
11899 RICHARDSON HWY REST AREA	Richardson	310.0	8830 Richardson Hwy/Munson Slough	Richardson	324.3
11899 Richardson hwy	Richardson	310.1	Richardson Hwy @ Old Richardson Hwy	Richardson	324.3
State Pull Out T/A on Richardson Hwy	Richardson	313.1	8750 Richardson Hwy	Richardson	324.5
11161 Richardson Hwy	Richardson	314.8	Richardson Hwy @ Salcha ES Dr	Richardson	325.4
Richardson @ Wrong Way Ln	Richardson	316.7	Richardson Hwy @ Starkeyville Ln	Richardson	326.2
10536 Richardson Hwy	Richardson	317.4	8263 Richardson Hwy	Richardson	326.3
Salcha Scenic Turnout	Richardson	317.8	Richardson Hwy @ Snow White Ct	Richardson	330.9
Richardson Hwy @ Salcha Dr South	Richardson	319.3	Richardson Hwy @ Bullwinkle Ct	Richardson	331.3
9581 Richardson Hwy	Richardson	321.0	Richardson Hwy @ Grieme Rd/Tom Bear Trl	Richardson	331.7
9199 Richardson Hwy	Richardson	322.1	Richardson Hwy @ Maggie Dr	Richardson	332.0
9163 Richardson Hwy	Richardson	322.2	Richardson Hwy @ Pit Run Ct	Richardson	332.2
Richardson Hwy @ Price Dr	Richardson	322.5	Richardson Hwy @ Paula Ct (Knotty Shop)	Richardson	332.41
Richardson Hwy @ Harry Lucke Trl	Richardson	322.6	6550 Richardson Hwy	Richardson	332.42
9207 Richardson Hwy LDS Church	Richardson	322.8	Richardson Hwy @ Howell Rd/Cleveland Ave	Richardson	332.7
Salcha Marine	Richardson	323.1	5972 Richardson Hwy	Richardson	334.3







Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# FNSBSD Bus Stop Locations

**FNSBSD: 47 School Bus Stop Locations on the A/R/S Corridor**

**13 school bus stops on the Steese Highway (north of Farmer's Loop Rd)**

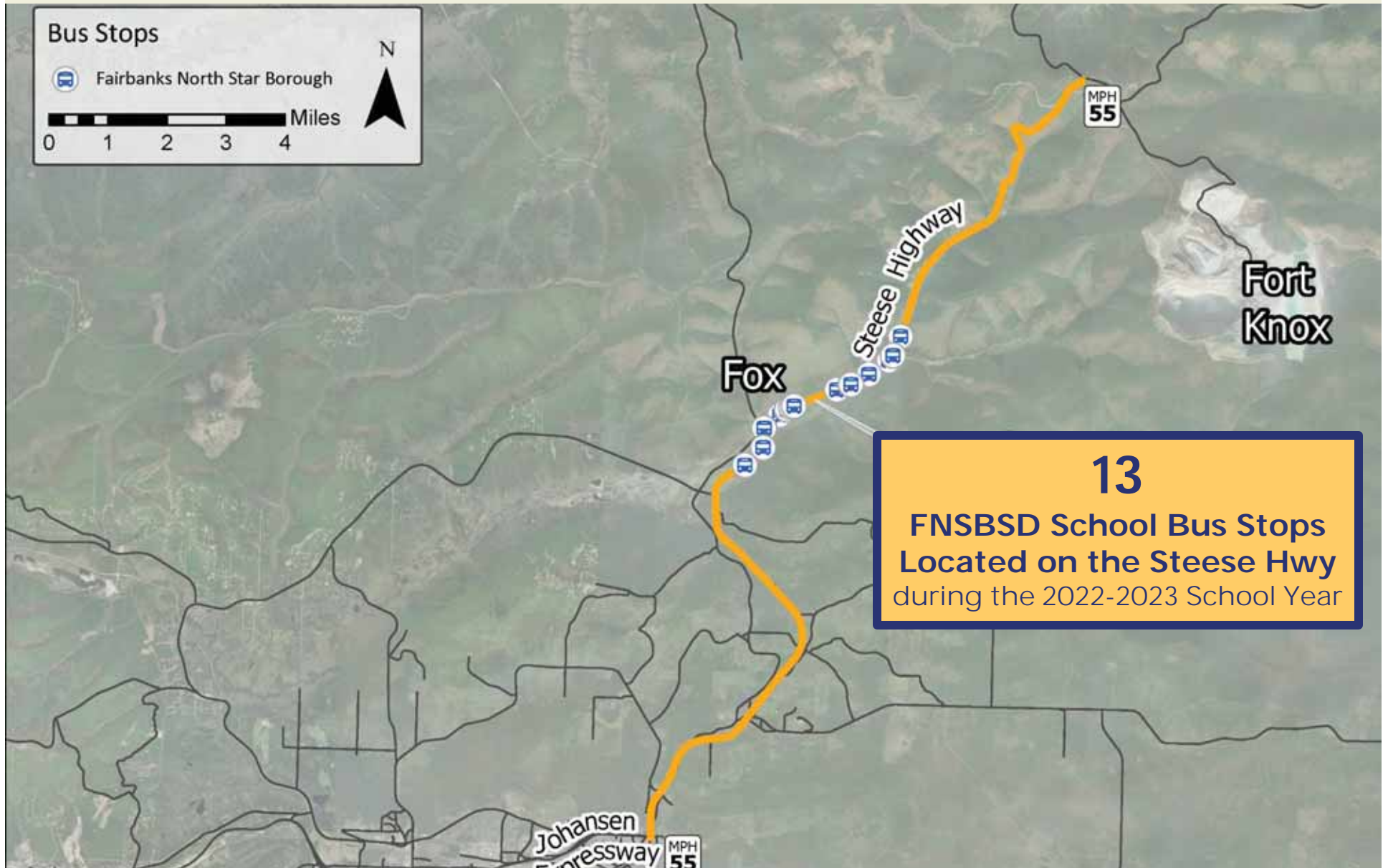
2022-2023 Bus Stop Location	Highway	Milepost
2010 Steese Hwy	Steese	10.3
2126 Steese Hwy	Steese	10.7
Steese Hwy @ Old Steese Hwy/Elliot Hwy	Steese	11.1
2303 Steese Hwy	Steese	11.4
2324 Steese Hwy	Steese	11.6
2343 Steese Hwy	Steese	11.67
Steese Hwy @ Gunner Ln	Steese	11.7
2465 Steese Hwy	Steese	12.4
2505 Steese Hwy	Steese	12.7
2541 Steese Hwy	Steese	13.1
2605 Steese Hwy (only To School)	Steese	13.5
2641 Steese Hwy/Old Steese Hwy	Steese	13.6
2755 Steese Hwy	Steese	14.0

**13 school bus stops  
on the Steese Highway**

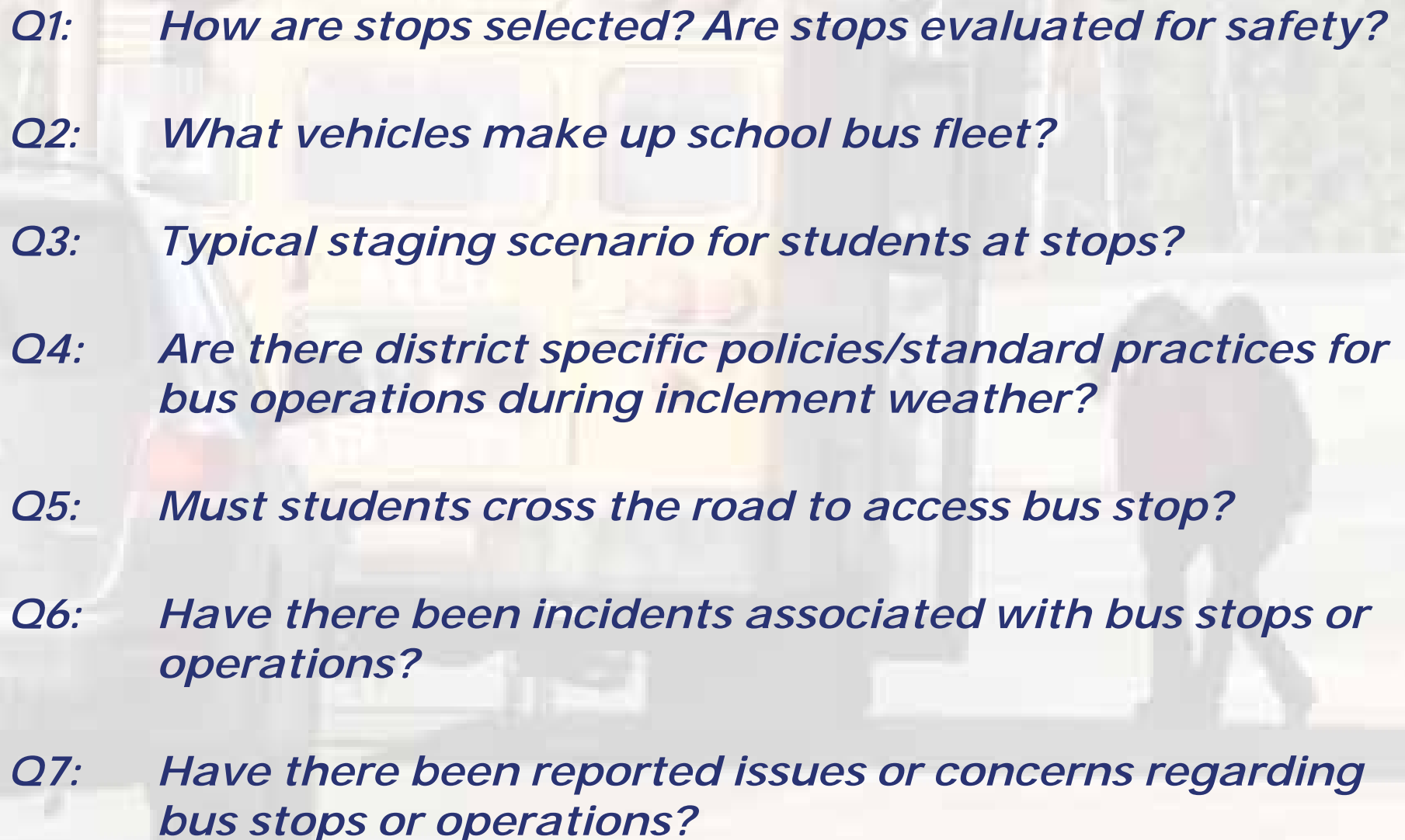


Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# FNSBSD Bus Stop Locations on the Steese Hwy



## Meetings with School District Representatives

- 
- Q1:** *How are stops selected? Are stops evaluated for safety?*
- Q2:** *What vehicles make up school bus fleet?*
- Q3:** *Typical staging scenario for students at stops?*
- Q4:** *Are there district specific policies/standard practices for bus operations during inclement weather?*
- Q5:** *Must students cross the road to access bus stop?*
- Q6:** *Have there been incidents associated with bus stops or operations?*
- Q7:** *Have there been reported issues or concerns regarding bus stops or operations?*

Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Summary of Meeting with Alaska Gateway SD

July 13, 2023, via Teams | Stretch Blackard, Patrick Mayer, Phoebe Bredlie, Michael Carter, Randy Kinney

- Q1: *How are stops selected? Are stops evaluated for safety?*  
**AGSD stops on Alaska Hwy located at residential driveways as needed. District is aware of sightlines at stops but not a problem for Alaska Hwy in Tok.**
- Q2: *What vehicles make up school bus fleet?*  
**Standard yellow school bus w/all mandated safety equipment.**
- Q3: *Typical staging scenario for students at stops?*  
**Students access bus from their driveway. Kindergarten students are required to have parent/guardian present. 1<sup>st</sup> grade & older not required.**
- Q4: *Are there district specific policies/standard practices for bus operations during inclement weather?*  
**Transportation is provided in all weather conditions down to -60F. Cold weather days are attendance optional, but bus service still provided. No bus cancel in 5+ yr.**
- Q5: *Must students cross the road to access bus stop?*  
**Students allowed to cross the road but must follow bus driver instructions. Unavoidable due to scheduling but recognized as most dangerous part of student transportation. Bus drivers and students trained in, and expected to follow, crossing policy.**
- Q6: *Have there been incidents associated with bus stops or operations?*  
**No incidents in 6 years and unaware of any back to 2007.**
- Q7: *Have there been reported issues or concerns regarding bus stops or operations?* **2-3 calls from public per year handled on case-by-case basis  
Drivers speeding, passenger vehicles not stopping for bus.**

Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Summary of Meeting with Delta/Greely SD

July 20, 2023, via Teams | Christie Hanson, Phoebe Bredlie, Michael Carter

- Q1: *How are stops selected? Are stops evaluated for safety?*  
**D/GSD stops on Alaska & Rich Hwys located at residential driveways as needed.**
- Q2: *What vehicles make up school bus fleet?*  
**Standard yellow school bus w/all mandated safety equipment.**
- Q3: *Typical staging scenario for students at stops?*  
**Students access bus from their driveway. Head Start through 2nd grade required to have parent/guardian present. No requirements for older students.**
- Q4: *Are there district specific policies/standard practices for bus operations during inclement weather?*  
**Students receive bus safety orientation prior to school year beginning. Transportation provided in temperatures down to -50F. School cancelled if icy conditions present during highway inspections.**
- Q5: *Must students cross the road to access bus stop?*  
**Students do not cross the road, all buses routed to make students access from right.**
- Q6: *Have there been incidents associated with bus stops or operations?*  
**One incident involving bus/passenger car in 17 years – low visibility in ice fog conditions.**
- Q7: *Have there been reported issues or concerns regarding bus stops or operations?* **No specific public concerns regarding bus stops – infrequent comments on bus drivers pulling over to let following cars pass.**

Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Summary of Meeting with FNSBSD

July 17, 2023, FNSBSD Bldg. | Ryan Hinton, Dr. Luke Meinert, Phoebe Bredlie, Michael Carter, Randy Kinney

*Q1: How are stops selected? Are stops evaluated for safety?*

**No specific policy on selecting stop locations but stops generally not placed within 0.1 mi of existing stop unless unsafe for student to access. Most stops on Rich and Steese Hwys located at residential driveways. Collector stops in turnouts off roadway. Special education stops required to be in student's driveway. New stop locations are reviewed by transportation supervisor to ensure bus can safely access.**

*Q2: What vehicles make up school bus fleet?*

**Standard yellow school buses and special education yellow buses with mandated safety equipment. Standard minivans available but not in use (standard school bus equipment not installed).**

*Q3: Typical staging scenario for students at stops?*

**Students access bus from driveways or from turnouts. Special education students require parent/guardian supervision to access bus only. No supervision requirements for other students.**

*Q4: Are there district specific policies/standard practices for bus operations during inclement weather?*

**Inclement weather procedures dependent on conditions. Schedules adjusted as needed.**

Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Summary of Meeting with FNSBSD – Cont.

July 17, 2023, FNSBSD Bldg. | Ryan Hinton, Dr. Luke Meinert, Phoebe Bredlie, Michael Carter, Randy Kinney

*Q5: Must students cross the road to access bus stop?*

**Every scheduling effort made to avoid students crossing the road. Rich and Steese routes are out and back so students stay on until bus turns around. Flag stops common at beginning of year – Driver has student inform parent to contact school and add stop to bus route. Any student crossing road must follow driver directions**

*Q6: Have there been incidents associated with bus stops or operations?*

**No incidents on Richardson and Steese Hwy routes.  
Surprising number of passenger vehicles rearending buses in district's urban areas.**

*Q7: Have there been reported issues or concerns regarding bus stops or operations?*

**Calls from public about bus operations are infrequent and handled when they arise (e.g., dangerous stops, bus blocking driveway, bus navigating roundabouts, etc.).**

# School Bus Stop Analysis Module

1. Background
2. Data Collection
- 3. Analysis**
4. Results by School District
5. Potential Mitigation Strategies
6. Q&A (time permitting)





# School Bus Stop Analysis Module

## Definitions

**SSD** is one of the [ten] **Controlling Design Criteria** identified by FHWA as having **substantial importance to the operational and safety performance of any highway** such that special attention should be paid to them in design decisions.

-DOT&PF Alaska Highway Preconstruction Manual



# School Bus Stop Analysis Module

## Definitions

**Stopping Sight Distance (SSD) =  
Reaction Distance + Braking Distance**

**Reaction Distance:** the distance traveled by the vehicle from the instant the driver sees an object necessitating a stop to the instant the brakes are applied

- Reaction time of driver
- Speed of vehicle

**Braking Distance:** the distance traveled by the vehicle from the instant brake application begins to the instant when the vehicle has come to complete stop

- Speed of vehicle
- Coefficient of friction between the tires and the roadway surface



# School Bus Stop Analysis Module

## Definitions

**AASHTO SSD and Ice SSD comparison covered in May 16 TAC Meeting Questions**

		SSD <sub>AASHTO</sub> <sup>*</sup> a = 11.2 fps <sup>2</sup>	SSD <sub>ICE</sub> f = 0.10	SSD % Increase
Speed, MPH	45	360 feet	845 feet	135%
	50	425 feet	1,020 feet	140%
	55	495 feet	1,215 feet	145%
	60	570 feet	1,425 feet	150%
	65	645 feet	1,650 feet	156%

*\* The AASHTO Green Book establishes minimum design values for sight distance. The design criteria assume that the available friction is that of a wet roadway.*

Per FHWA, it has been shown that:

- Heavy vehicles achieve the same deceleration rate as passenger cars on wet pavement when the heavy vehicle is equipped with antilock brakes.
- Since the AASHTO design criteria accounts for wet pavement and allows for controlled braking, the design stopping sight distance criteria are adequate for heavy vehicles.



# School Bus Stop Analysis Module

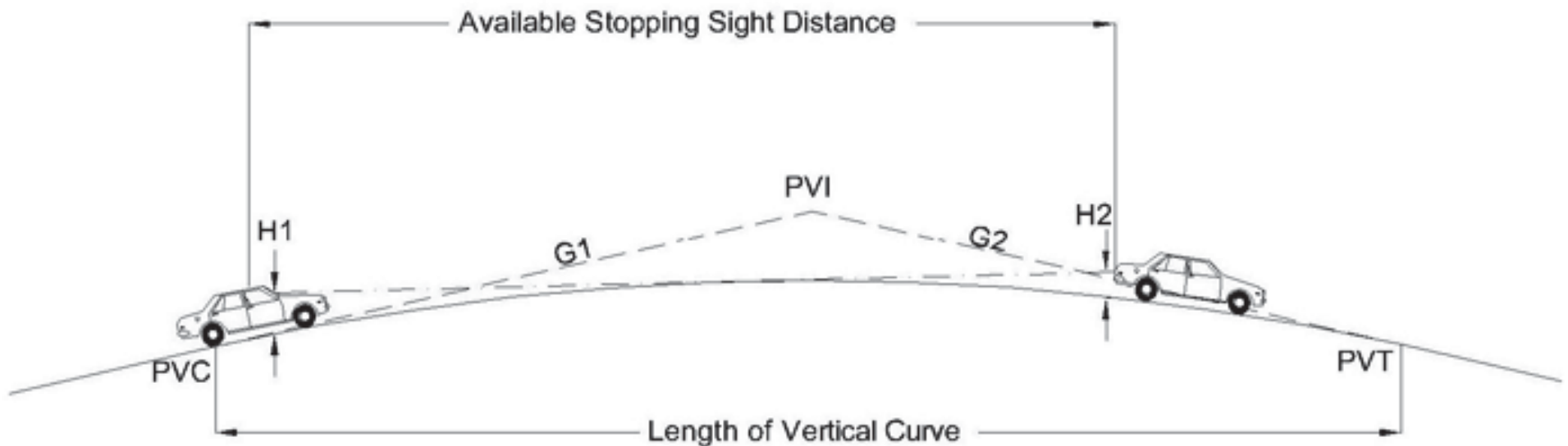
## Vertical & Horizontal Curvature

- SSD is influenced by both vertical and horizontal curvature.
- A roadway designed to criteria employs a horizontal and vertical alignment and a cross section that provides at least the minimum stopping sight distance through the entire facility.



# School Bus Stop Analysis Module

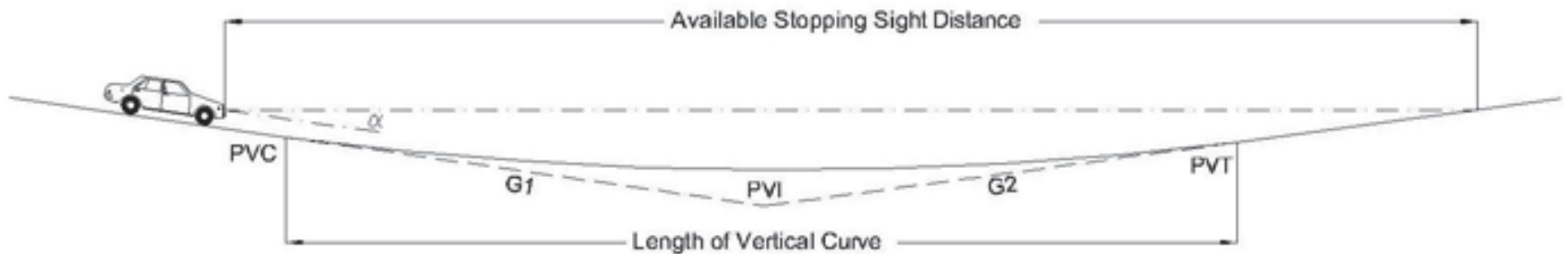
## Effect of Crest Vertical Curves on SD



**For crest vertical curves, the geometry of the roadway (the driver's view of the road ahead) limits SSD.**

# School Bus Stop Analysis Module

## Effect of Sag Vertical Curves on SD



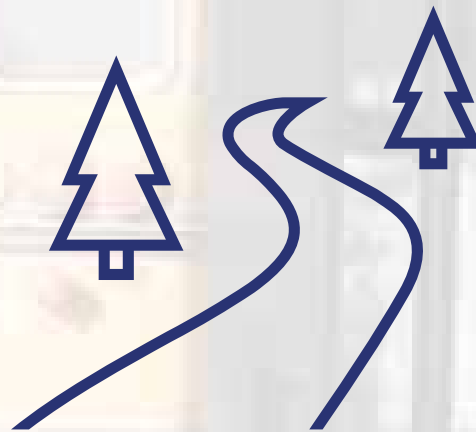
For sag vertical curves, headlight sight distance limits SSD.

# School Bus Stop Analysis Module

## Effect of Crest Vertical Curves on SD

For horizontal curves, physical obstructions can limit SSD:

- Vegetation
- Bridge piers
- Barriers
- Walls
- Backslopes



# School Bus Stop Analysis Module

## Analyze SSD at School Bus Stop Locations

Desktop analysis to determine the available sight distance,  $SSD_{AVAILABLE}$

- ✓ Aerial imagery (e.g., Google Earth) to evaluate horizontal curvature and SSD
- ✓ Construction as-builts of road profiles to evaluate vertical curvature and SSD
- ✓ Right-of-Way Widths
- ✓ Posted Speed Limits
- X No site investigations or field surveys



# School Bus Stop Analysis Module

## Analyze SSD at School Bus Stop Locations

Adequate?

Yes =  $SSD_{AVAILABLE} > SSD_{AASHTO}$

No =  $SSD_{AVAILABLE} < SSD_{AASHTO}$

Yes, for all  
86  
locations.



# School Bus Stop Analysis Module

## Analyze SSD at School Bus Stop Locations

Adequate?

Yes =  $SSD_{AVAILABLE} > SSD_{ICE}$

Yes, for 51 of the  
86 locations.

No =  $SSD_{AVAILABLE} < SSD_{ICE}$

No, for 35 of the  
86 locations.



# School Bus Stop Analysis Module

1. Background
2. Data Collection
3. Analysis
- 4. Results by School District**
5. Potential Mitigation Strategies
6. Q&A (time permitting)



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Alaska Gateway SD Bus Stop Analysis Results

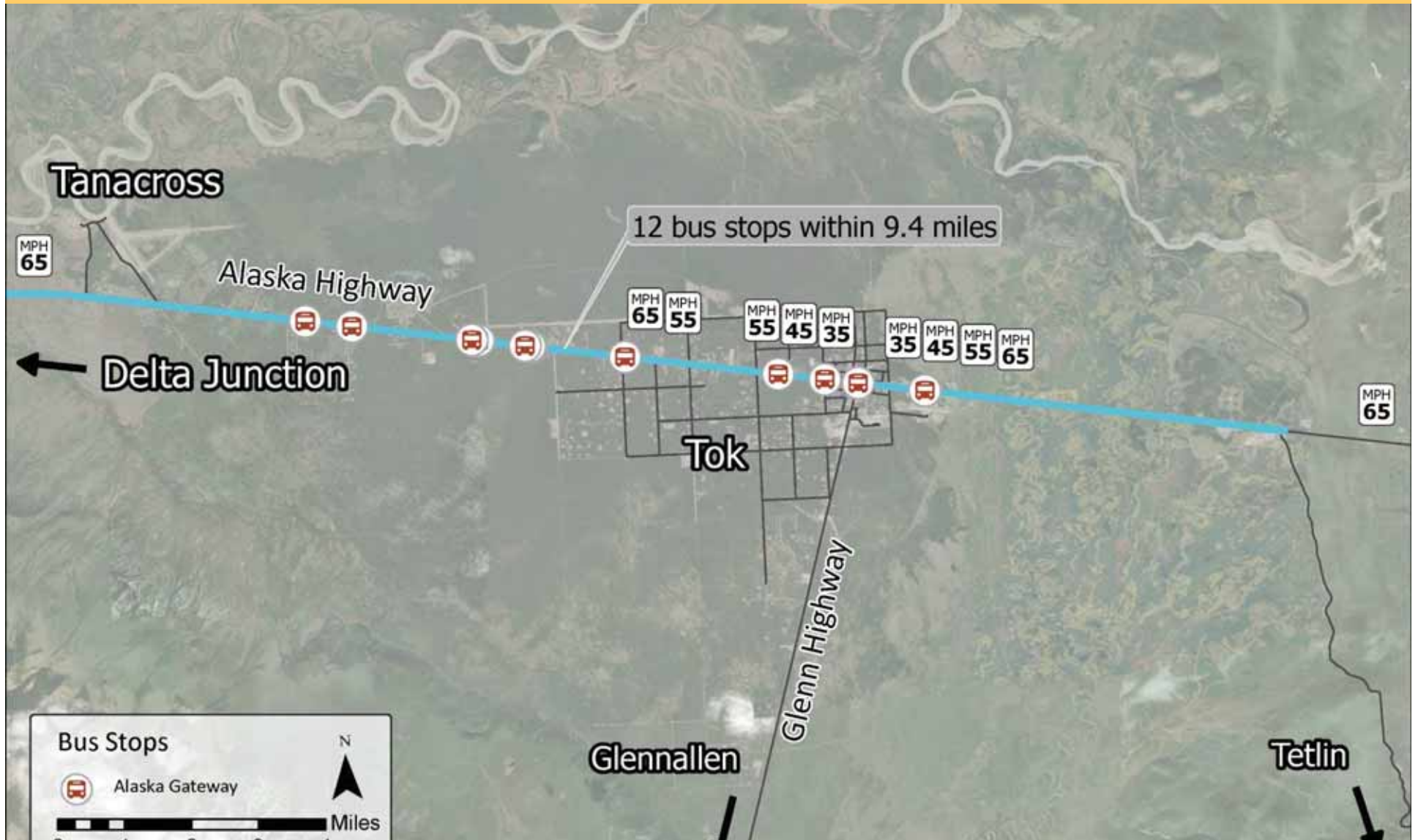
2022-2023 Bus Stop Location	Highway	Milepost	Adequate? Yes/No	
			SSD <sub>AASHTO</sub>	SSD <sub>ICE</sub>
Alaska Hwy MP 1319.13	Alaska	1313.2	Yes	Yes
Alaska Hwy MP 1319.2	Alaska	1314.2	Yes	Yes
Alaska Hwy MP 1319.9	Alaska	1314.7	Yes	Yes
Alaska Hwy MP 1320	Alaska	1315.4	Yes	Yes
Alaska Hwy MP 1321.8	Alaska	1317.7	Yes	Yes
Alaska Hwy MP 1319.1	Alaska	1319.1	Yes	Yes
Alaska Hwy MP 1319.13	Alaska	1319.13	Yes	Yes
Alaska Hwy MP 1319.2	Alaska	1319.2	Yes	Yes
Alaska Hwy MP 1319.9	Alaska	1319.9	Yes	Yes
Alaska Hwy MP 1320	Alaska	1320.0	Yes	Yes
Alaska Hwy MP 1321.8	Alaska	1321.8	Yes	Yes
Alaska Hwy MP 1322.5	Alaska	1322.5	Yes	Yes
<b>Adequate/Total:</b>			<b>12/12</b>	<b>12/12</b>



Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Alaska Gateway SD Bus Stop Analysis Results

Results: For all 12 locations, the  $SSD_{AVAILABLE}$  exceeds the  $SSD_{AASHTO}$  and  $SSD_{ICE}$



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

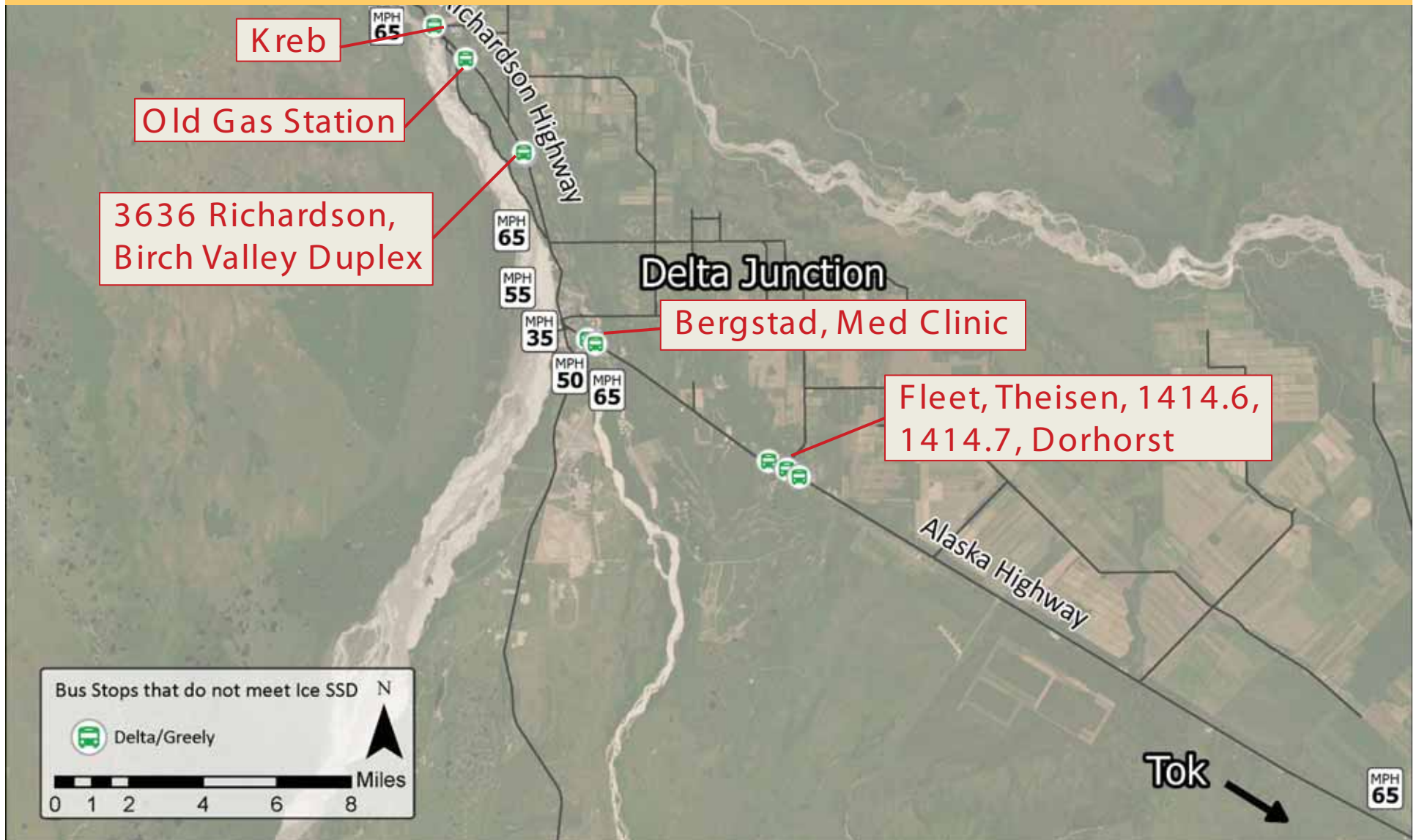
2022-2023 Bus Stop Location	Highway	Milepost	Adequate? Yes/No	
			SSD <sub>AASHTO</sub>	SSD <sub>ICE</sub>
Silver Fox	Alaska	1404.2	Yes	Yes
Alaska Hwy @ Fleet Street	Alaska	1414.3	Yes	No
Alaska Hwy @ Theisen	Alaska	1414.4	Yes	No
Alaska Hwy MP 1414.6	Alaska	1414.6	Yes	No
Alaska Hwy MP 1414.7	Alaska	1414.7	Yes	No
Alaska Hwy @ Dorhorst Rd	Alaska	1414.9	Yes	No
Alaska Hwy MP 1416.5	Alaska	1416.5	Yes	Yes
Bergstad Trailer Crt	Alaska	1421.0	Yes	No
Med Clinic on Ak Hwy	Alaska	1421.3	Yes	No
DOT pull out	Richardson	267.0	Yes	Yes
Green Acres	Richardson	267.8	Yes	Yes
Richardson Hwy Apartments	Richardson	268.8	Yes	Yes
2880 Richardson Hwy	Richardson	269.3	Yes	Yes
3146 Richardson Hwy	Richardson	270.0	Yes	Yes
3370 Richardson Hwy	Richardson	270.2	Yes	Yes
3720 Richardson Hwy	Richardson	270.3	Yes	Yes
639 Richardson Hwy	Richardson	270.4	Yes	Yes
3636 Richardson Hwy	Richardson	270.8	Yes	No
Birch Valley Duplex	Richardson	270.9	Yes	No
4840 Richardson Hwy	Richardson	273.2	Yes	Yes
Old Gas station stop at Bridge	Richardson	275.3	Yes	No
McAfee Dr	Richardson	273.6	Yes	Yes
Probert St	Richardson	272.7	Yes	Yes
Kreb Lane	Richardson	274.0	Yes	No
Sandra St	Richardson	272.0	Yes	Yes
Rebecca Lane	Richardson	271.9	Yes	Yes
Spengler Rd	Richardson	269.4	Yes	Yes
<b>Adequate/Total:</b>			<b>27/27</b>	<b>16/27</b>



Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

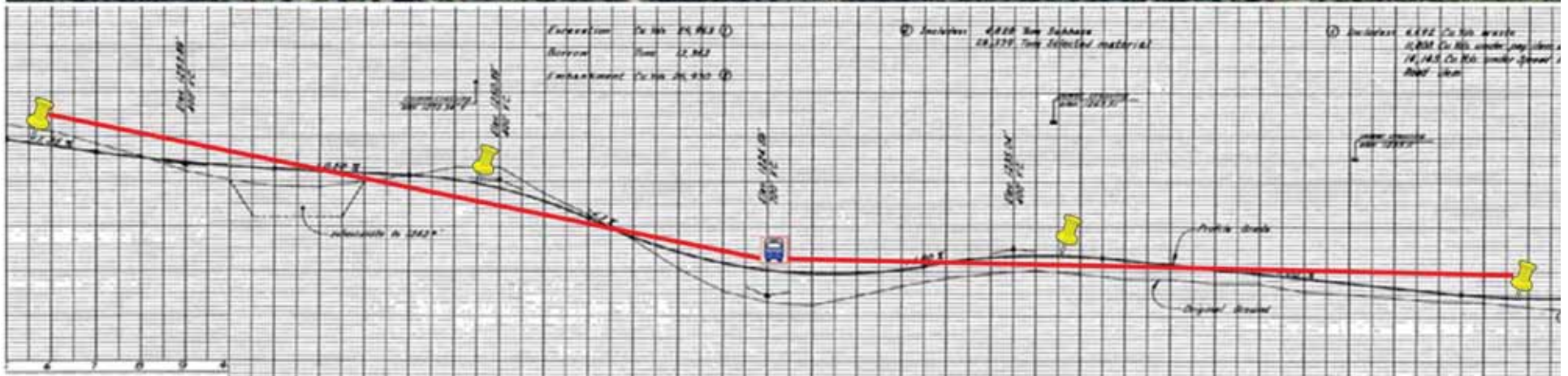
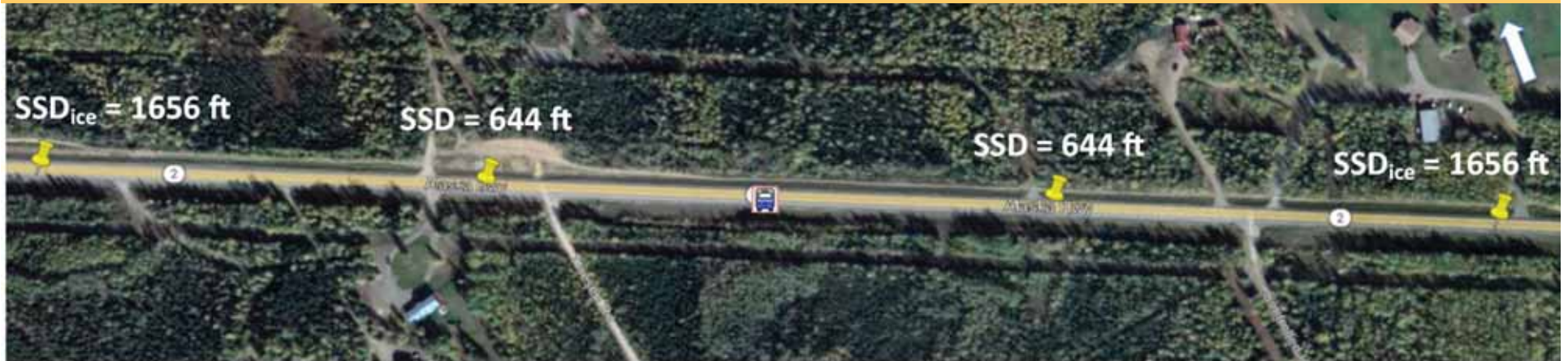
Results: There are 11 locations on the Alaska Hwy where the  $SSD_{AVAILABLE}$  is less than  $SSD_{ICE}$



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Alaska Hwy @ Fleet St (MP 1414.3)



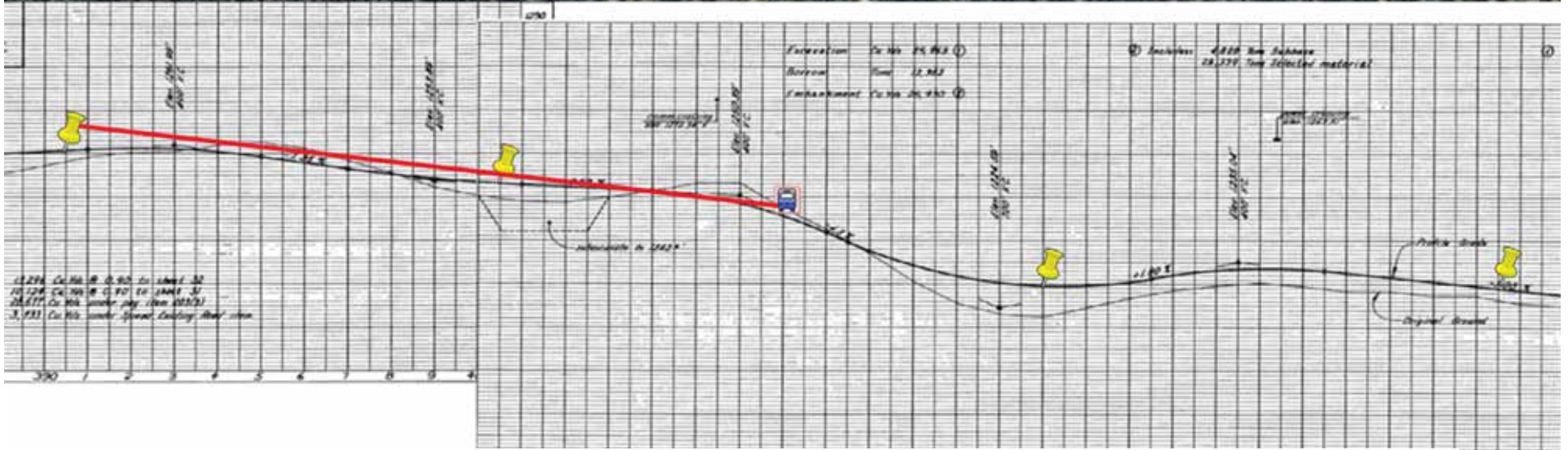
Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
1414.3	300	north	65	400	2.9		644	1656	Vertical
		south	65	400	3.8		644	1656	Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Alaska Hwy @ Theisen

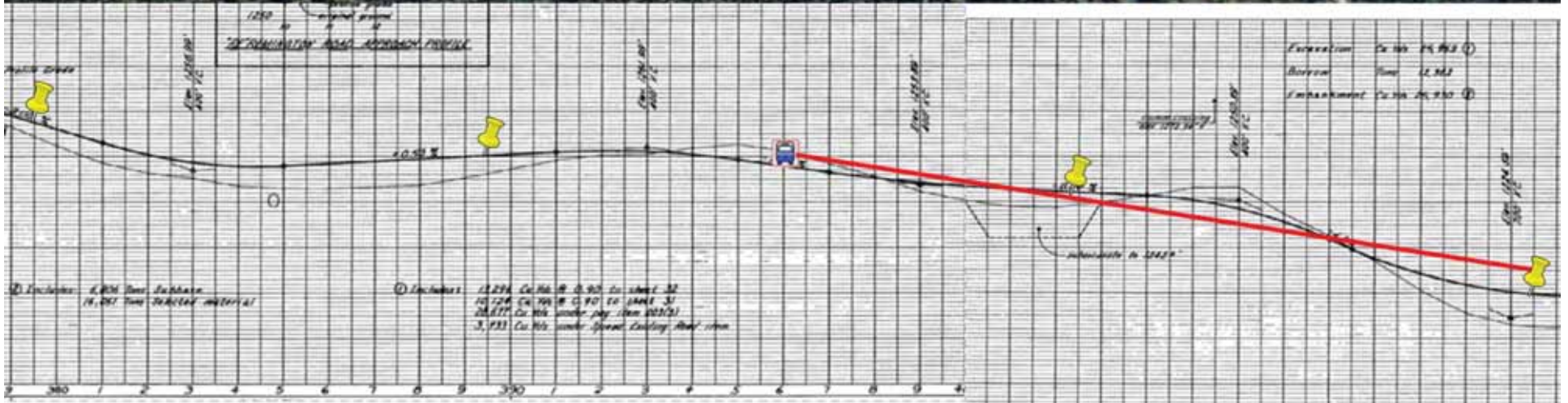


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
1414.4	300	north	65	400	2.9		644	1656	Vertical
		south	65	400	1.9		599	1656	Vertical

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Alaska Hwy @ MP 1414.6



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
1414.6	300	north	65	400	3.8		644	1656	Vertical
		south	65	400	1.9		644	1656	Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Alaska Hwy @ Dorhorst Rd



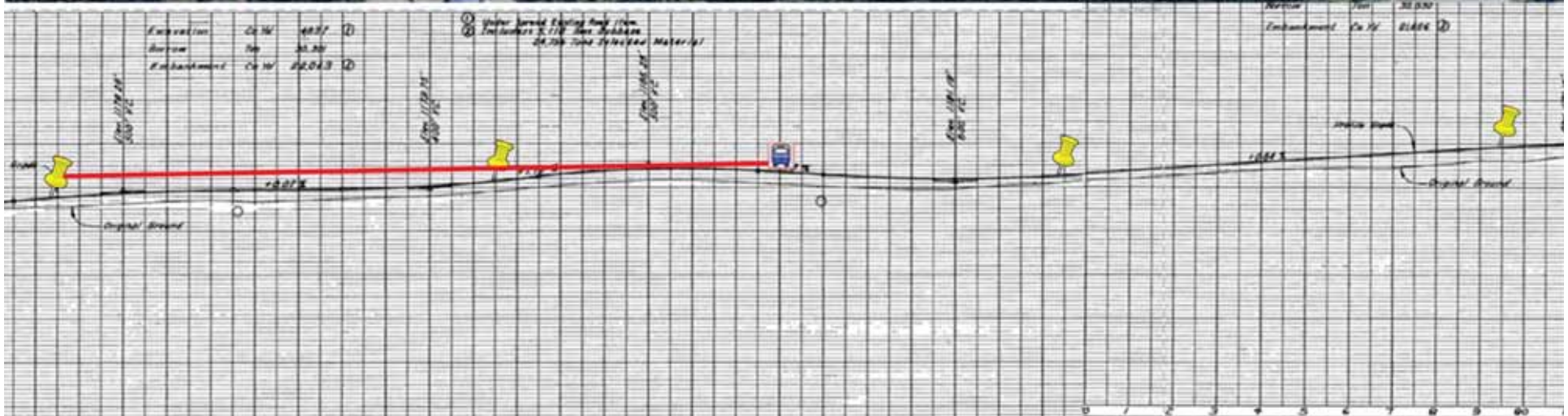
Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
1414.9	300	north	65	925	2865		644	1656	Horizontal
		south	65	1172	2865		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Bergstad Trailer Court



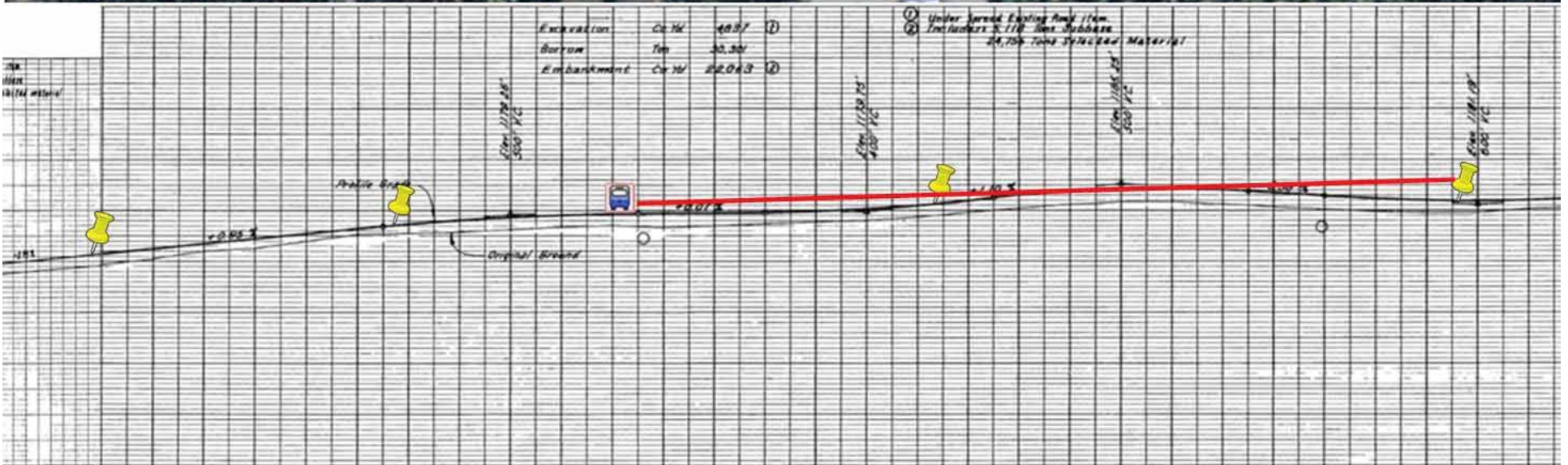
Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
1421.0	300	north	65				644	1656	Vertical
		south	65	500	1.7		644	1656	



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Med Clinic on Alaska Hwy

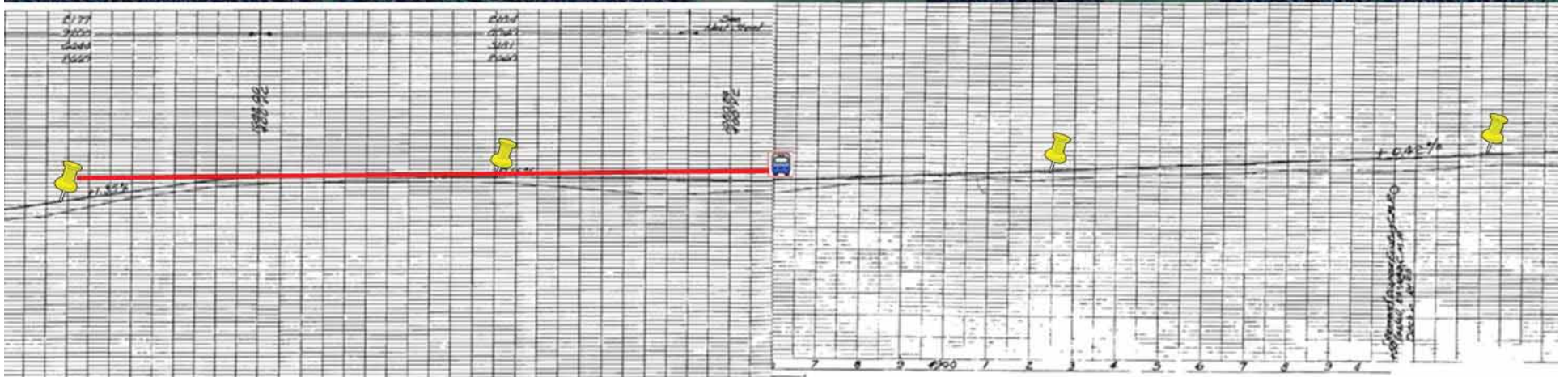


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
1421.3	300	north	65	500	1.68	644	1656	Vertical	
		south	50	500	1.0	423	1022	Vertical	

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## 3636 Richardson Hwy

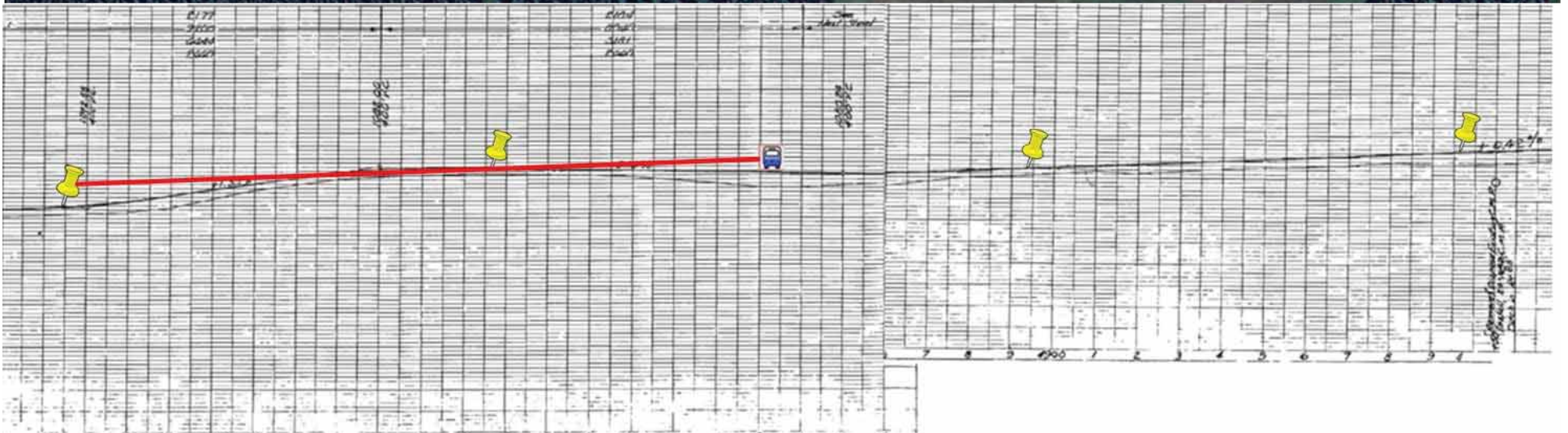
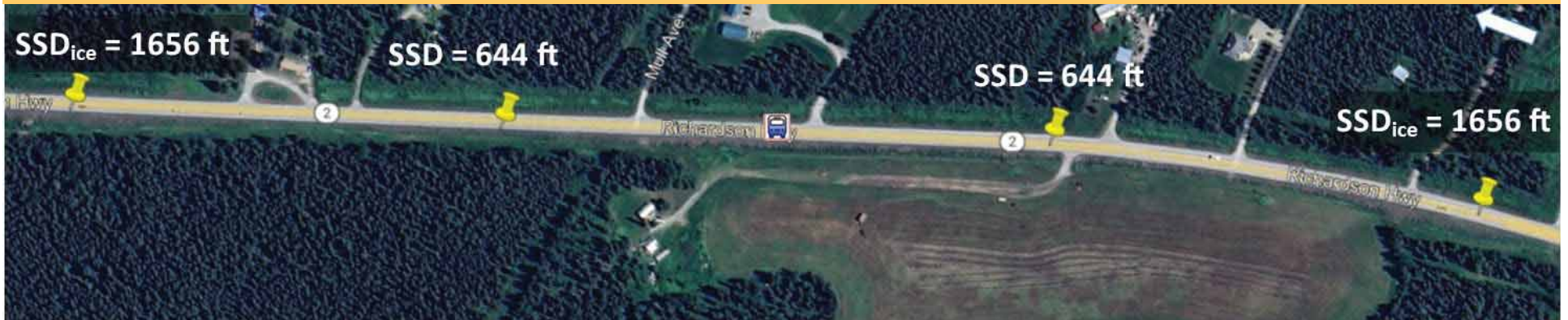


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
270.8	300	north	65	1335	5730				644	1656	Horizontal
		south	65			400	1.51		644	1656	Vertical

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Birch Valley Duplex



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
270.9	300	north	65	1335	5730			644	1656	Horizontal	
		south	65			400	1.51	644	1656	Vertical	



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Old Gas Station Stop at Bridge



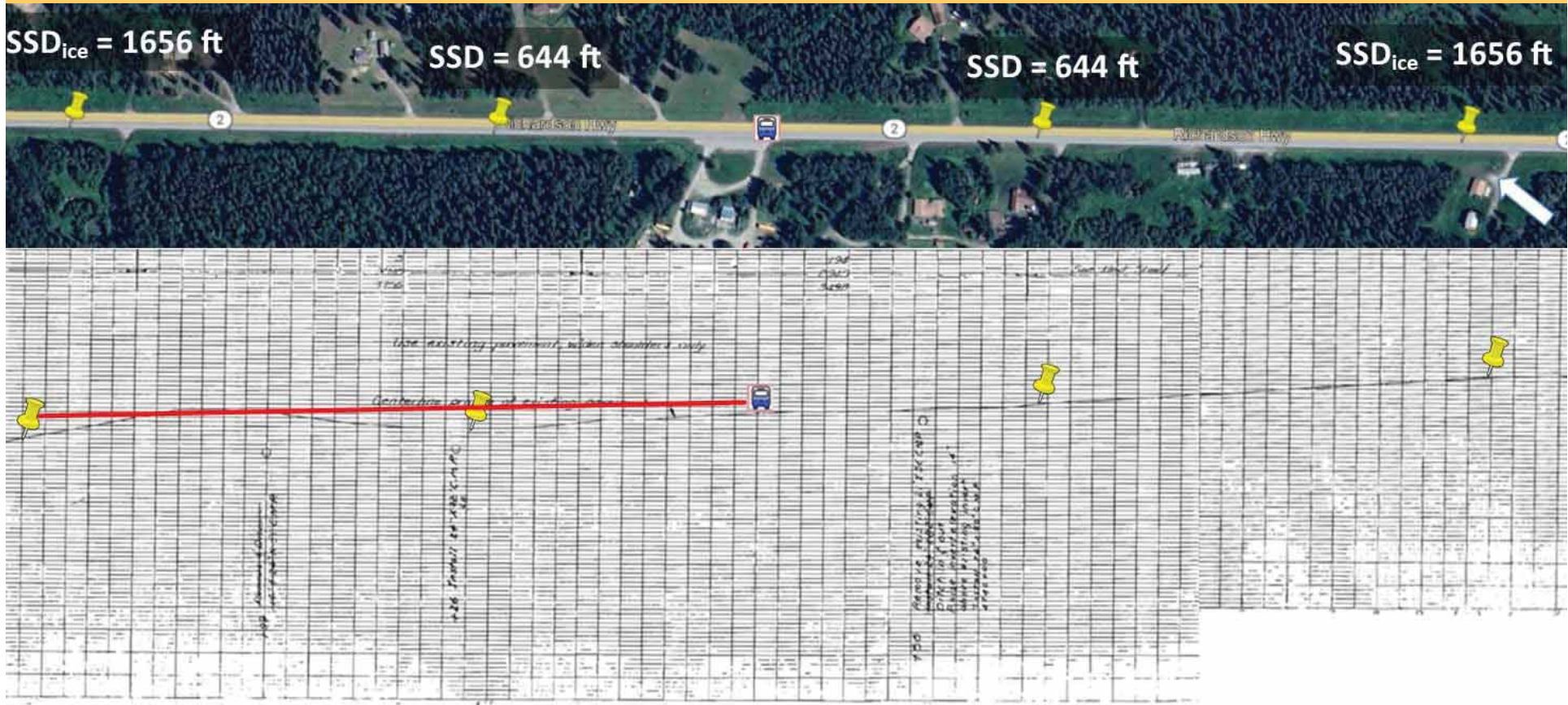
Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
275.3	300	north	65				644	1656	Tangent
		south	65	500	10000		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# Delta/Greely SD Bus Stop Analysis Results

## Richardson Hwy @ Krebs Lane



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	A, %		AASHTO	Ice	
274.0	300	north	65	400	2.1		644	1656	Tangent
		south	65				644	1656	Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
**School Bus Stop Analysis Module**  
**FNSBSD Bus Stop Analysis Results**

**Richardson Hwy**

2022-2023 Bus Stop Location	Highway	Milepost	Adequate? Yes/No	
			SSD <sub>AASHTO</sub>	SSD <sub>ICE</sub>
BIRCH LAKE PULLOUT No Intersection	Richardson	306.0	Yes	No
12005 Richardson Hwy	Richardson	307.9	Yes	No
11899 RICHARDSON HWY REST AREA	Richardson	310.0	Yes	No
11899 Richardson hwy	Richardson	310.1	Yes	No
State Pull Out T/A on Richardson Hwy	Richardson	313.1	Yes	No
11161 Richardson Hwy	Richardson	314.8	Yes	Yes
Richardson @ Wrong Way Ln	Richardson	316.7	Yes	No
10536 Richardson Hwy	Richardson	317.4	Yes	No
Salcha Scenic Turnout	Richardson	317.8	Yes	No
Richardson Hwy @ Salcha Dr South	Richardson	319.3	Yes	No
9581 Richardson Hwy	Richardson	321.0	Yes	Yes
9199 Richardson Hwy	Richardson	322.1	Yes	Yes
9163 Richardson Hwy	Richardson	322.2	Yes	Yes
Richardson Hwy @ Price Dr	Richardson	322.5	Yes	Yes
Richardson Hwy @ Harry Lucke Trl	Richardson	322.6	Yes	Yes
9207 Richardson Hwy LDS Church	Richardson	322.8	Yes	No
Salcha Marine	Richardson	323.1	Yes	No
8835 Richardson Hwy	Richardson	323.8	Yes	No
8810 Richardson Hwy/Walts rd	Richardson	323.9	Yes	No
8830 Richardson Hwy/Munson Slough	Richardson	324.3	Yes	Yes
Richardson Hwy @ Old Richardson Hwy	Richardson	324.3	Yes	No
8750 Richardson Hwy	Richardson	324.5	Yes	No
Richardson Hwy @ Salcha ES Dr	Richardson	325.4	Yes	No
Richardson Hwy @ Starkeyville Ln	Richardson	326.2	Yes	Yes
8263 Richardson Hwy	Richardson	326.3	Yes	Yes
Richardson Hwy @ Snow White Ct	Richardson	330.9	Yes	Yes
Richardson Hwy @ Bullwinkle Ct	Richardson	331.3	Yes	Yes
Richardson Hwy @ Grieme Rd/Tom Bear Trl	Richardson	331.7	Yes	Yes
Richardson Hwy @ Maggie Dr	Richardson	332.0	Yes	Yes
Richardson Hwy @ Pit Run Ct	Richardson	332.2	Yes	Yes
Richardson Hwy @ Paula Ct (Knotty Shop)	Richardson	332.41	Yes	Yes
6550 Richardson Hwy	Richardson	332.42	Yes	Yes
Richardson Hwy @ Howell Rd/Cleveland Ave	Richardson	332.7	Yes	Yes
5972 Richardson Hwy	Richardson	334.3	Yes	Yes
<b>Adequate/Total:</b>			<b>34/34</b>	<b>18/34</b>



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# FNSBSD Bus Stop Analysis Results

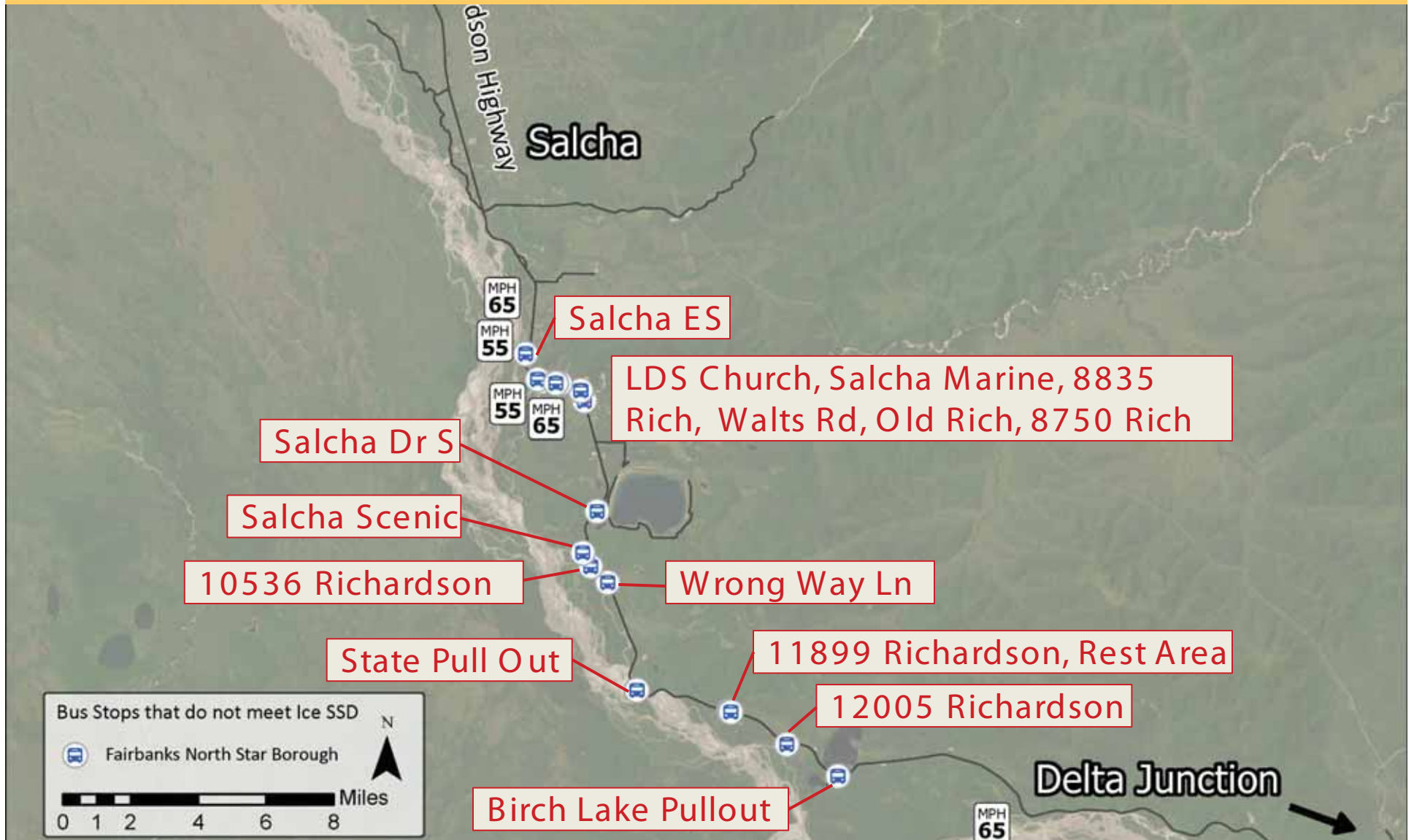
## Steese Hwy

2022-2023 Bus Stop Location	Highway	Milepost	Adequate? Yes/No	
			SSD <sub>AASHTO</sub>	SSD <sub>ICE</sub>
2010 Steese Hwy	Steese	10.3	Yes	Yes
2126 Steese Hwy	Steese	10.7	Yes	No
Steese Hwy @ Old Steese Hwy/Elliot Hwy	Steese	11.1	Yes	Yes
2303 Steese Hwy	Steese	11.4	Yes	No
2324 Steese Hwy	Steese	11.6	Yes	No
2343 Steese Hwy	Steese	11.67	Yes	No
Steese Hwy @ Gunner Ln	Steese	11.7	Yes	No
2465 Steese Hwy	Steese	12.4	Yes	Yes
2505 Steese Hwy	Steese	12.7	Yes	No
2541 Steese Hwy	Steese	13.1	Yes	Yes
2605 Steese Hwy (only To School)	Steese	13.5	Yes	No
2641 Steese Hwy/Old Steese Hwy	Steese	13.6	Yes	No
2755 Steese Hwy	Steese	14.0	Yes	Yes
<b>Adequate/Total:</b>			<b>13/13</b>	<b>5/13</b>



Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

Richardson Hwy Results: There are 16 locations where the  $SSD_{AVAILABLE}$  is less than  $SSD_{ICE}$



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Birch Lake Pullout (Bus turnaround location)**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Not Met
				Length, ft	Radius, ft		AASHTO	Ice	
306.0	300*	north	65	1045	1146		644	1656	Horizontal
		south	65	1045	1146		644	1656	Horizontal

\*ROW limited to ~200 ft north of the stop depending on location of Birch Lake



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# FNSBSD Bus Stop Analysis Results

12005 Richardson Hwy (Bus stops in SB Direction Only)

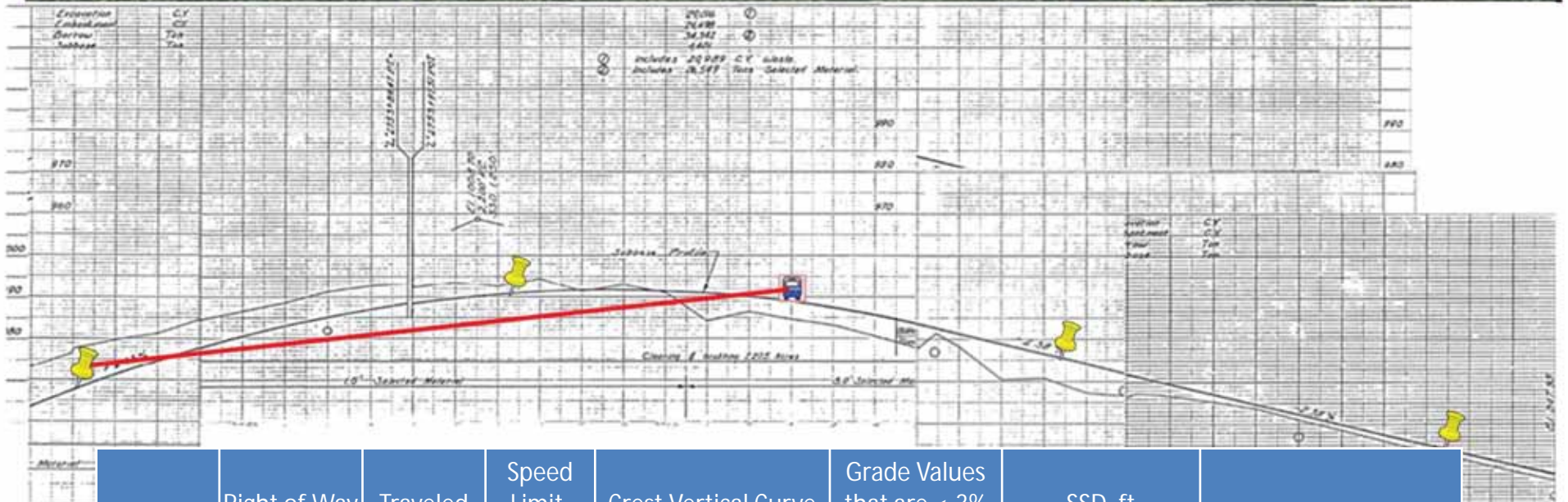
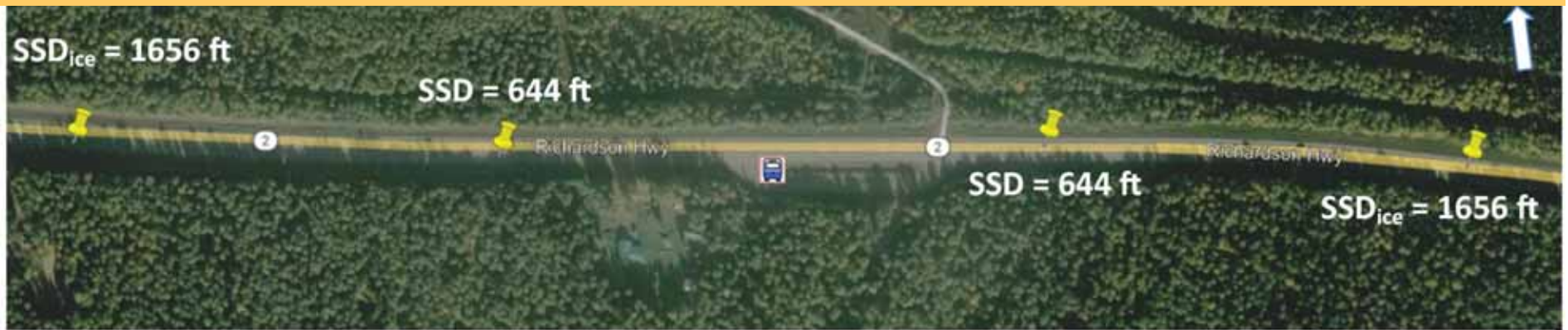


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
307.9	300	north	65	1985	2292		644	1656	Horizontal
		south	65	1985	2292		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**11899 Richardson Hwy Rest Area**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
310.0	300	north	65				644	1656	Vertical
		south	65				644	1656	Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**11899 Richardson Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
310.1	300	north	65				644	1656	Vertical
		south	65				644	1656	Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# FNSBSD Bus Stop Analysis Results

## State Pull Out Turnaround on Richardson Hwy



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
313.1	300	north	65	2595	1528		644	1656	Horizontal
		south	65				644	1656	Tangent



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Richardson Hwy @ Wrong Way Ln**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
316.7	300	north	65	1468	1637		644	1656	Horizontal
		south	65	1468	1637		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

10536 Richardson Hwy

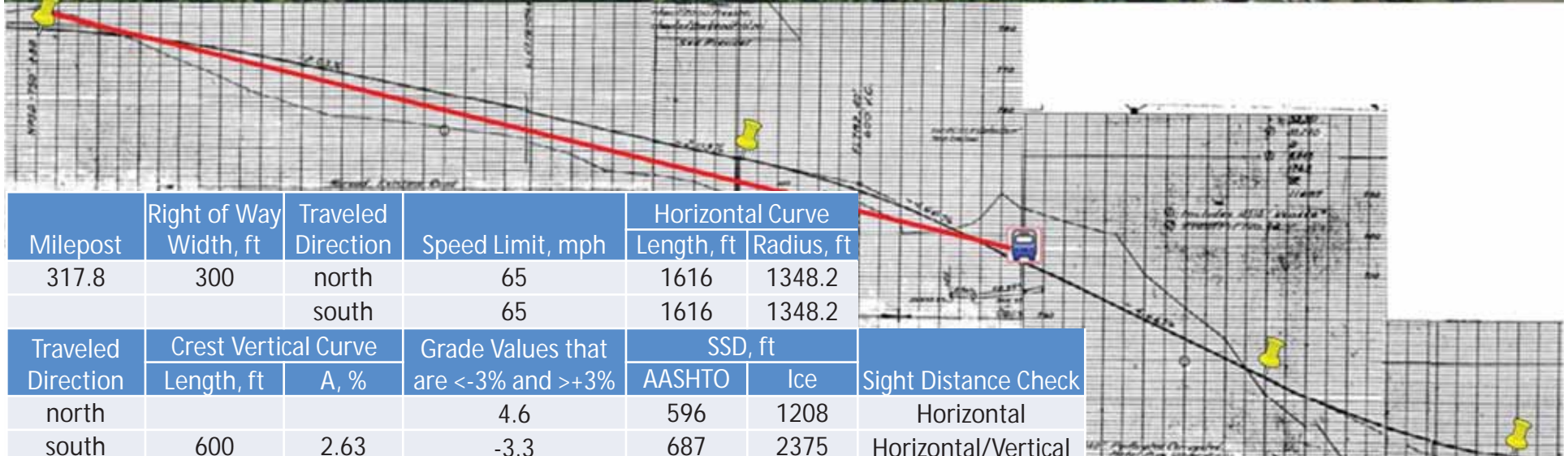


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft		AASHTO	Ice	
317.4	300	north	65	781	2292		644	1656	Horizontal
				1435	1433				
		south	65	781	2292		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Salcha Scenic Turnout**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Sight Distance Check
				Length, ft	Radius, ft	
317.8	300	north	65	1616	1348.2	Horizontal
		south	65	1616	1348.2	
Traveled Direction	Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
	Length, ft	A, %		AASHTO	Ice	
north			4.6	596	1208	Horizontal
south	600	2.63	-3.3	687	2375	Horizontal/Vertical

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**9207 Richardson Hwy (LDS Church)**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
322.8	300	north	65				644	1656	Tangent
		south	65	1558	1637.1		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Richardson Hwy @ Salcha Dr South**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
319.3	300	north	65				644	1656	Tangent
		south	65	993	2865		644	1656	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module

# FNSBSD Bus Stop Analysis Results

## Salcha Marine



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
323.1	300	north	65	1558	1637.1				644	1656	Horizontal
		south	65	1558	1637.1	1000	3.18		644	1656	Horizontal/Vertical



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

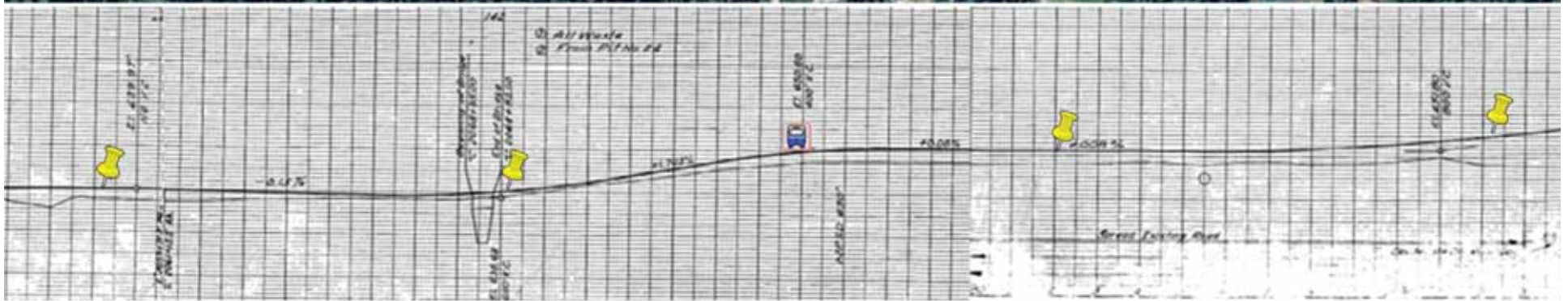
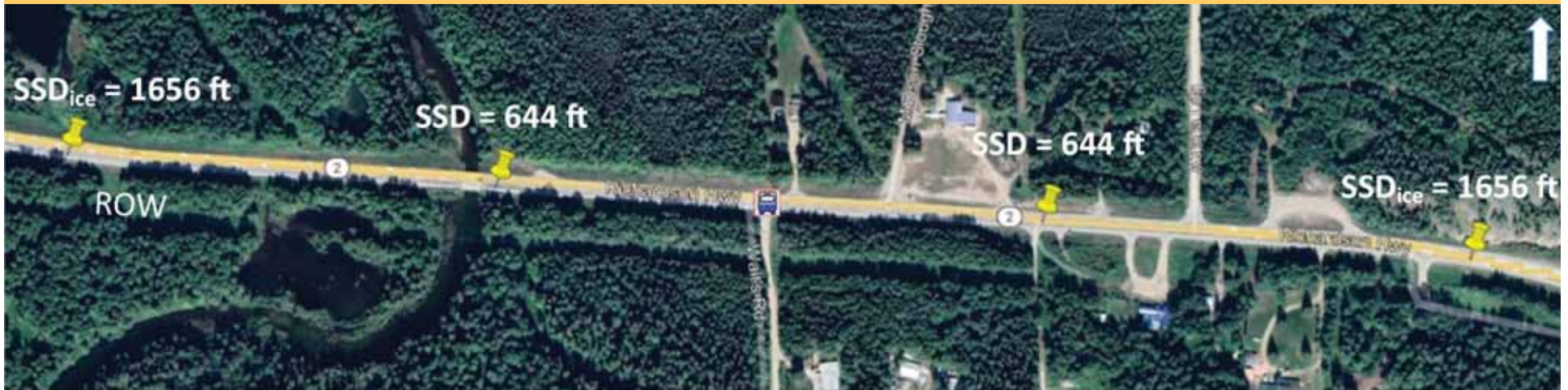
**8835 Richardson Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
323.8	300	north	65	792	2865	400	1.62		644	1656	Horizontal
		south	65						644	1656	Vertical

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**8810 Richardson Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
323.9	300	north	65	2096	2865	400	1.62		644	1656	Horizontal/Vertical
		south	65	2096	2865	400	1.62		644	1656	Horizontal/Vertical

Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Richardson Hwy @ Old Richardson Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
324.3	300	north	55	2096	2865		492	1217	Horizontal
		south	55	2096	2865		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**8750 Richardson Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
324.5	300	north	55	2096	2865		492	1217	Horizontal
		south	55	2096	2865		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Richardson Hwy @ Salcha ES Dr**

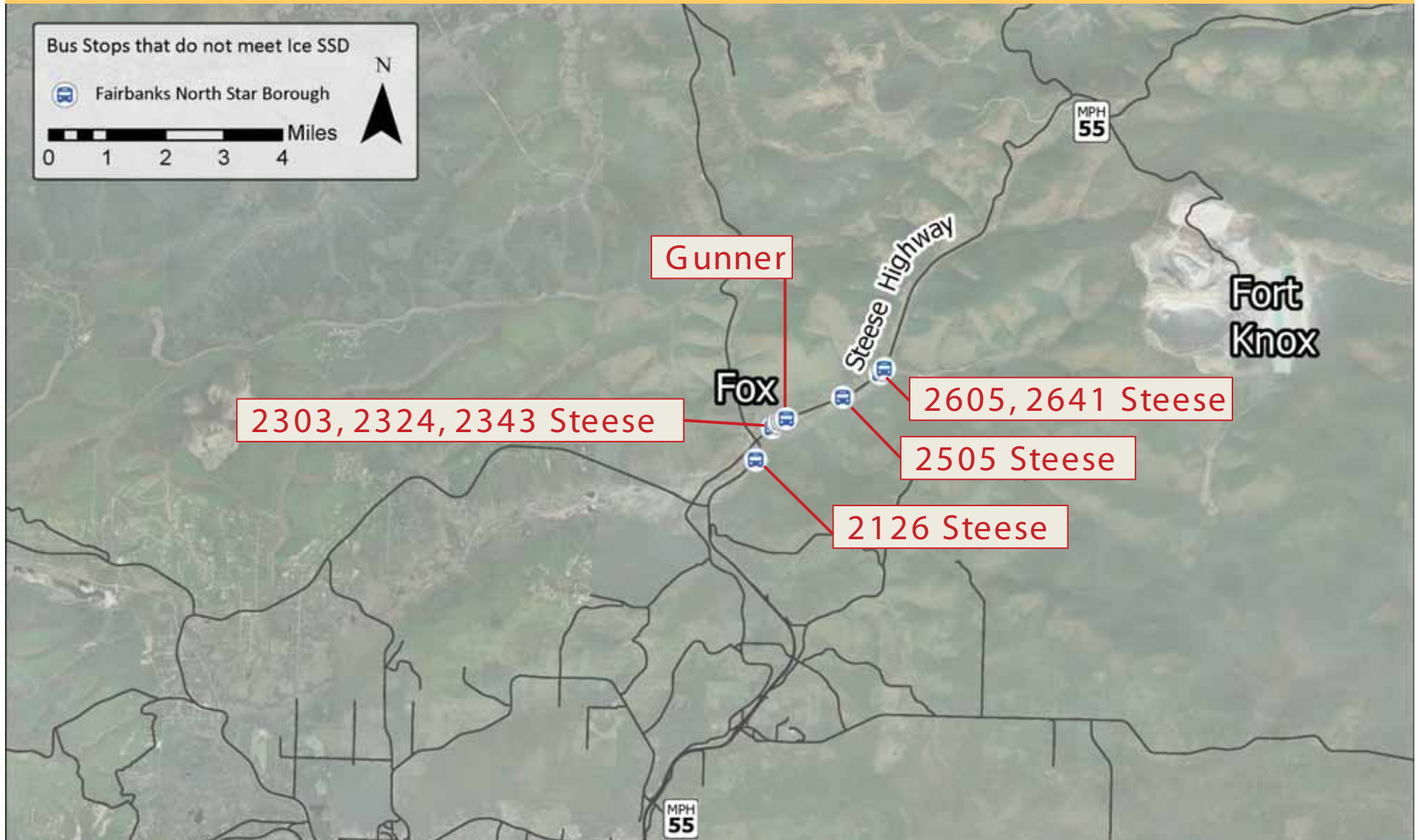


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Crest Vertical Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Radius, ft	Length, ft	A, %		AASHTO	Ice	
325.41	300	north	55	1856	1791	1600	2.4	492	1217	Horizontal/Vertical	
		south	55	533	2292		492			1217	Horizontal

Alaska/Richardson/Steese Highways Corridor Action Plan  
School Bus Stop Analysis Module

# FNSBSD Bus Stop Analysis Results

Steese Hwy Results: There are 8 locations where the  $SSD_{AVAILABLE}$  is less than  $SSD_{ICE}$



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2126 Steese Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
10.7	330	north	55				492	1217	Tangent
		south	55	1473	1146		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2303 Steese Hwy**



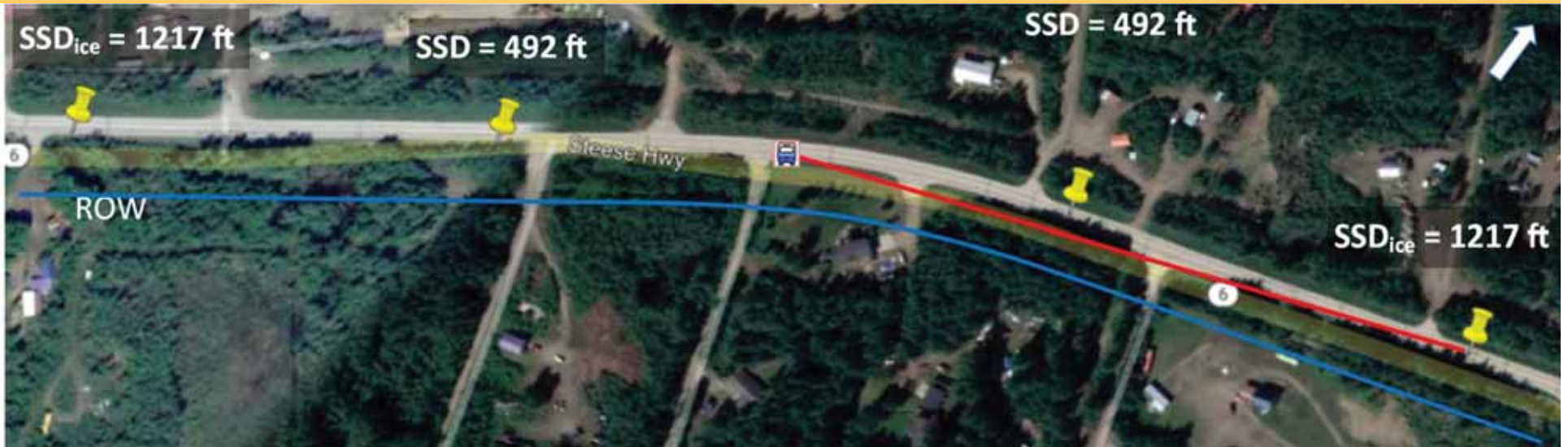
Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
11.4	200	north	55				492	1217	Tangent
		south	55	750	2600		492	1217	Horizontal





Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2324 Steese Hwy**

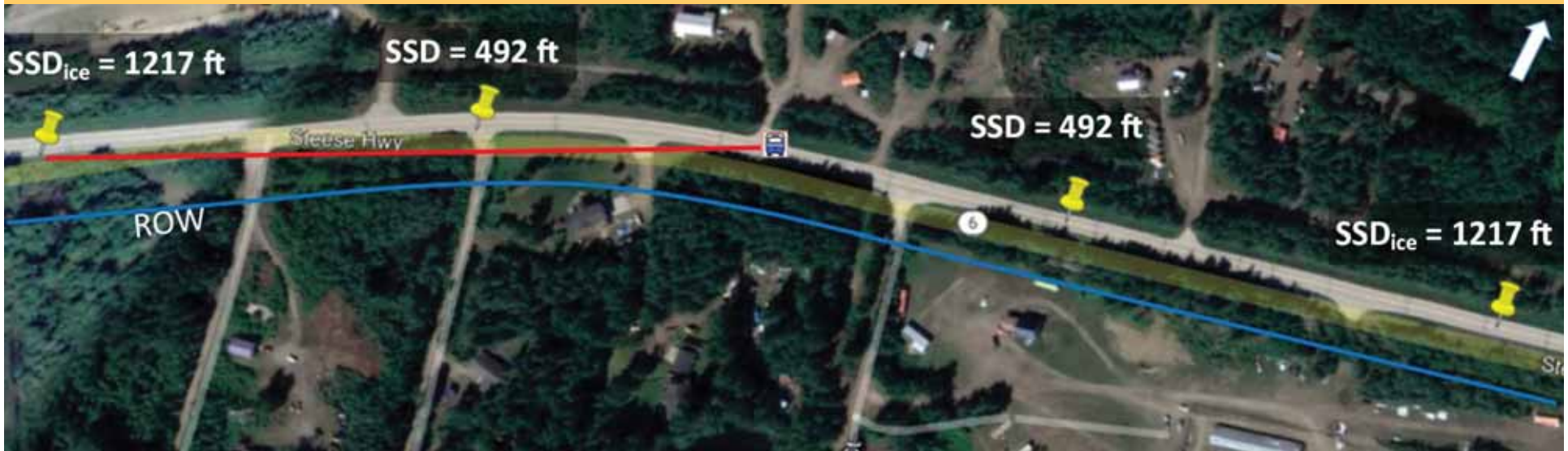


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
11.6	200	north	55				492	1217	Tangent
		south	55	750	2600		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2343 Steese Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
11.7	200	north	55	750	2600		492	1217	Horizontal
		south	55				492	1217	Tangent



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**Steese Hwy @ Gunner Ln**

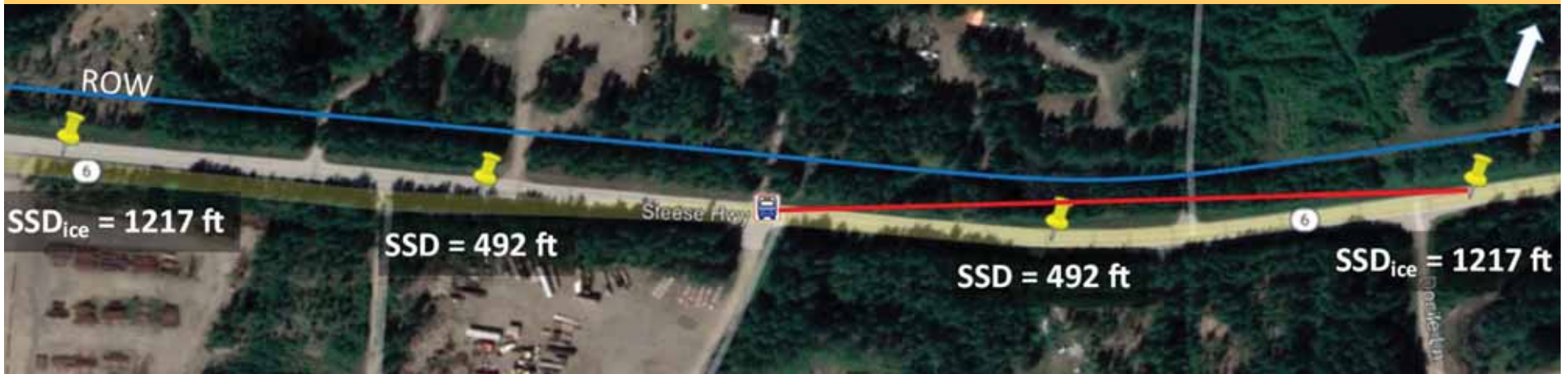


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
11.7	200	north	55	750	2600		492	1217	Horizontal
		south	55				492	1217	Tangent



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2505 Steese Hwy**

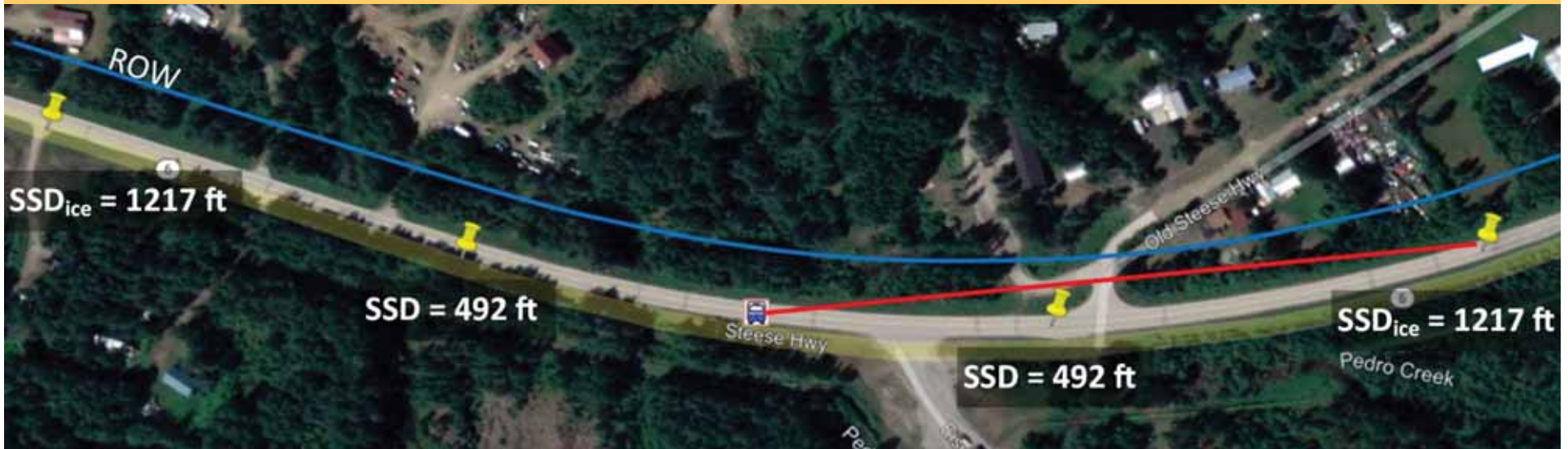


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
12.7	200	north	55				492	1217	Tangent
		south	55	850	2600		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2605 Steese Hwy**

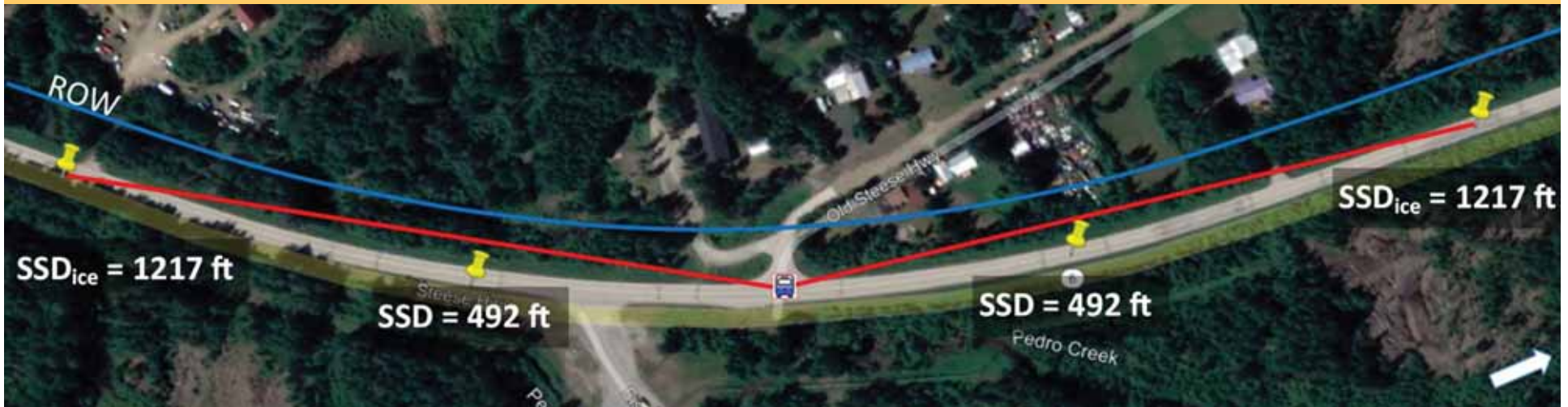


Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
13.5	200	north	55	1980	3300		492	1217	Horizontal
		south	55	1980	3300		492	1217	Horizontal



Alaska/Richardson/Steese Highways Corridor Action Plan  
 School Bus Stop Analysis Module  
**FNSBSD Bus Stop Analysis Results**

**2641 Steese Hwy**



Milepost	Right of Way Width, ft	Traveled Direction	Speed Limit, mph	Horizontal Curve		Grade Values that are <-3% and >+3%	SSD, ft		Sight Distance Check
				Length, ft	Length, ft		AASHTO	Ice	
13.6	200	north	55	1980	3300		492	1217	Horizontal
		south	55	1980	3300		492	1217	Horizontal



# School Bus Stop Analysis Module

1. Background
2. Data Collection
3. Analysis
4. Results by School District
- 5. Potential Mitigation Strategies**
6. Q&A (time permitting)



# School Bus Stop Analysis Module

- 
5. **Potential Mitigation Strategies**
    - i. **Infrastructure Improvements**
    - ii. **M&O**
    - iii. **Other**



# School Bus Stop Analysis Module

## Infrastructure Improvements

- ❖ Reconstruct Roadway
- ❖ Clear Obstructions
- ❖ Install Lighting
- ❖ ITS

# School Bus Stop Analysis Module

## M&O

- ❖ Clear Vegetation to ROW
- ❖ Clear Obstructions
- ❖ High-Friction Surface Treatment

# School Bus Stop Analysis Module

## Other

- ❖ Remove or Relocate Bus Stop
- ❖ Establish No Passing Zones



# School Bus Stop Analysis Module

1. Background
2. Data Collection
3. Analysis
4. Results by School District
5. Potential Mitigation Strategies
- 6. Q&A (time permitting)**



# School Bus Stop Analysis Module

## Questions

