## Preliminary Alternative Development and Level 1 Screening Memorandum

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## Project Overview

The State of Alaska Department of Transportation and Public Facilities (DOT\&PF) has identified the need for a future alternative highway corridor in the Wasilla area of the Matanuska-Susitna (Mat-Su) Borough and has chosen to use the Planning and Environmental Linkages (PEL) process to identify a recommended alternative highway corridor that connects the Parks Highway between approximately the Hyer Road Interchange and West Hawk Lane (refer to Figure 1).


Figure 1: Study Area

## Study Area Limits

The Study Area is the project location for the PEL Study and defined as being an area that plans for the development of an alternate highway corridor that connects to the George Parks Highway. The DOT\&PF confirmed that analyses to identify the corridor location will focus on the area south of the Parks Highway. The Study Area is broadly bordered ( $+500-1000$ feet) by the Parks Highway to the north, Hyer Road interchange to the east, West Hawk Lane to the west, and Palmer Slough to the south

## Routes North of Parks Highway

As with 2015 Conceptual Planning Study, the area north of the Parks Highway is not included in the Study Area. In the previous study this area was eliminated due to densely developed commercial and

residential property north of the Parks Highway and the "chain of lakes" that extend northeast of Wasilla, resulting in a low likelihood of developing a viable corridor in this area. The study area was determined early in the project and documented in a Project Area Memo.

## Corridor Alignment Development Process

Large-scale projects such as this generally require several levels of screening. Fatal flaw screens are typically applied at the outset to eliminate clearly impracticable or unreasonable alternatives (e.g., alternatives that don't meet the project purpose and need). The refinement of screens increases as the range of alternatives narrows.

The purpose of this memo is to describe the initial alternative alignments considered, and the results of the Level 1 Screening. Preliminary alignments that pass this initial screening will advance for further alternative development and Level 2 Screening. This will include more detailed screening criteria to refine the final alternatives recommended for detailed analysis.
The project team commenced the preliminary corridor alignment development process on May 11, 2022, with a half-day Alternative Development Workshop. The purpose of this workshop was for the project team, DOT\&PF, agencies, and other key stakeholders to collaborate and develop a set of draft corridor alignments. The project team captured these draft alternative alignments and conducted early engineering analysis (curve alignment, straightening, etc.) to refine them. During this initial refinement process, several alignments were modified to avoid a Section 4(f) historic site located in the eastern side of the study area.

The draft alternative alignments have been grouped into three categories:

- No Build: No changes to the Parks Highway. All transportation users continue to use the existing facilities within the study area with no proposed improvements.
- Existing Roadway Infrastructure Routes: This group of draft alternative alignments maximize the use of existing roadway infrastructure to create alternative alignments. Roads used include (dependent on the alternative) Fairview Loop, South Knik Goose Bay Road (S. KGB Road), and Hollywood Road. The Widen Existing Parks Highway alternative also maximizes the use of existing roadway infrastructure. Using existing roadways has the potential to maximize existing DOT\&PF roadway investments.
- Greenfield Routes: This group of draft alternative alignments follow various greenfield ${ }^{1}$ routes through the study area and create alternative corridors that cross existing land uses and are not constrained by an existing roadway. However, in some instances, Greenfield Routes use existing roads for a segment of the alignment. This category includes the preferred route identified in the 2015 Parks Highway Alternative Corridor Conceptual Planning Report.
The draft alternative alignments, Widening alternative, and No Build alternative are shown in Figure 2. For ease of analysis and description, they are named as follows and are used throughout this memorandum for consistency.
${ }^{1}$ A greenfield project is one that lacks constraints imposed by prior work and there is no need to work within the
existing infrastructure. For this project a green-field route is not constrained by an existing roadway.
- Greenfield Routes
- Dark Blue Route
- Black Dashed Route (2015 Conceptual Planning Report Recommendation)
- Purple Route
- Orange Route
- Existing Infrastructure Routes
- Green Route
- Yellow Route (Variation of Green Route)
- Pink Route (Variation of Green Route)
- Light Blue Route (Variation of Green and Orange Routes)
- Widen Existing Parks Highway Route (Widens Parks Highway in the existing location)
- No Build Route
- Parks Highway will remain as currently constructed

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Figure 2: Draft Alternative Alignments - Modified ${ }^{2}$

${ }^{2}$ The Dark Blue, Orange, Green, Yellow and Light Blue routes were modified to avoid a Section 4(f) historic site located at in the eastern end side of the study area.

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The following information is provided for all of the draft alternative alignments (colored routes), a Widening Parks Highway alternative, and for the No Build alternative.

- Route Description: The route description provides a detailed written explanation and corresponding figure for each draft alternative alignment. The route is described from east to west and includes information on the general location, the route termini ${ }^{3}$, roadways in the vicinity and crossed by the route, natural and built features crossed and in the vicinity, and potentially impacted existing development.
- Level 1 - Fatal Flaw Screening: Level 1 screening, summarized in Table 1, evaluates the Draft Alternative Alignments (colored routes) using criteria that determine:

1. Whether the alignments meet the project purpose and need (P\&N) (see Appendix A for a full description of the P\&N)
2. Whether the alignments meet specific regulatory requirements
3. Whether the alignments are technically feasible, reasonable ${ }^{4}$, practicable $^{5}$ and implementable.
Tables 2 and 3 provide Level 1 Screening summaries for the No Build and Widen Existing Parks Highway Alternatives using the same criteria.

- Preliminary Estimate of Impacts to Wetland and Waters of the U.S: Since the Clean Water Act (CWA) and U.S. Army Corps of Engineers (USACE) Section 404 permitting requirements only allow the USACE to permit the Least Environmentally Damaging Practicable Alternative (LEDPA) ${ }^{6}$, a preliminary estimate of impacts to wetlands and other Waters of the U.S. is provided for each alternative. Note that this analysis is based on desktop mapping. Field delineation of wetlands will be completed during a later phase of the project. Wetland impacts are not considered a fatal flaw at this time, as routes will continue to be refined to minimize and avoid impacts. This data is for informational purposes only, as part of the preliminary alternatives analysis.
- Rough Order Magnitude Cost Estimate: A rough order magnitude cost estimate has been developed for each Preliminary Alternative Alignment. These will continue to be refined as part of the alternative development and refinement process.

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## Greenfield Routes

## Dark Blue Route

## Route Description

The Dark Blue Route parallels the existing Parks Highway at an off-set of approximately one- to one-and-a-half miles south. The route includes numerous curves as it passes through undeveloped land. The eastern terminus is at Parks Highway and N. Hyer Road, and western terminus is at approximately Parks Highway Mile Post (MP) 50.0. The route is approximately 13.3 miles long.
Moving east to west, the Dark Blue Route begins at the Parks Highway and Hyer Road interchange and continues west along E. Fireweed Road for approximately a half-mile then continues south across gravel pits and S-B Shannon Street. This segment of the route is near the Alaska Railroad corridor and an existing Tesoro gas station. The route crosses the Alaska Railroad near the existing Fairview Loop and Old Matanuska Road intersection and heads west.

The route impacts the Fairview Landing Airport as it continues west for approximately two-and-a-half miles. This segment is located south of the Alaska Railroad and north of developed properties until it intersects with S. Bay View Drive. The route continues west for one mile before impacting developed properties before crossing Cottonwood Creek and intersecting with S. KGB Road and S. Fern Street.
The route continues west for one-and-a-half miles, crossing undeveloped land and a gravel pit before shifting to the northwest. It continues for one mile and then crosses S. Mack Drive and S. Clapp Street. The route then curves to the southwest, crossing gravel pits and impacting development along W. Ridge Line Drive and W. Rangeview Drive before intersecting with S. Foothills Boulevard south of Lucille Creek. For another mile the route traverses along fifty-foot-wide section line easements before intersecting with S. Vine Road and W. Jakes Road. In this location the route potentially impacts the north side of properties located along S. Joli Circle, S. Rue De La Paix Loop, and E. Placide Circle.

The route then continues for another mile, crosses Lucille Creek, and then turns north-west. It continues for another two miles curving around lakes and wetland areas prior to terminating at the W. Parks Highway near MP 50.00.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Dark Blue Routes Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 200 wetlands / 102.16 acres impacted
- 73 waterbodies / 3.12 acres impacted

500-foot corridor

- 312 wetlands / 165.78 acres impacted
- 121 waterbodies / 7.14 acres impacted

This is the route with the greatest number of wetlands and waterbodies impacted.

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## Dark Blue Routes Evaluation

This is the route with the greatest acreage of waterbodies potentially impacted.
Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Dark Blue Route ROW Impacts (Preliminary) | $\mathbf{3 0 0}-\mathrm{ft}$ Corridor | $\mathbf{5 0 0}-\mathrm{ft}$ Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 193 | 237 |
| Number of Privately Held Parcels Potentially Impacted | 171 | 212 |

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Figure 3: Dark Blue Route


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## Black Dashed Route (2015 Conceptual Route)

## Route Description

The Black Dashed Route is the 2015 Conceptual Planning Report Recommended alignment. This route was selected because it maximized the use of undeveloped land and minimized impacts to residences, wetlands, and environmentally sensitive areas. This route parallels the existing Parks Highway at an offset of approximately one- to one-and-a-half miles south and has the most curvature of all the draft alternative corridor alignments. The eastern terminus is the Parks Highway and Seward Meridian Parkway Interchange, and western terminus is at MP 50.00, at Valley Transit Bus Barn Park-and-Ride location. The route is approximately 11.2 miles long.
Moving east to west, the route proceeds southwest through a residential neighborhood along Southview Drive, crosses the Alaska Railroad and passes through a wetland. It then continues west through a residential subdivision, crosses Cottonwood Creek and S. KGB Road at the Fern Street intersection. After crossing S. KGB Road, the route continues through public and privately owned undeveloped land before crossing through a residential subdivision east of S. Clapp Street.

The route heads south and west crossing S. Vine Road and Lucille Creek and continues northwest through mostly undeveloped Native Corporation owned land. It ties into Parks Highway at MP 50.00.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Black Dashed Route Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 147 wetlands / 49.94 acres impacted
- 69 waterbodies / 2.43 acres impacted

500-foot corridor

- 240 wetlands / 81.51 acres impacted
- 118 waterbodies / 4.63 acres impacted

Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

[^1]Preliminary ROW Impacts

| Black Dashed Route ROW Impacts (Preliminary) | $\mathbf{3 0 0}$-ft Corridor | $\mathbf{5 0 0}$-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 189 | 223 |
| Number of Privately Held Parcels Potentially Impacted | 166 | 196 |

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Figure 4: Black Dashed Route (2015 Conceptual Route)


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## Purple Route

## Route Description

The Purple Route parallels the existing Parks Highway at an offset of approximately one- to one- and -a-half miles south and closely resembles the Dark Blue Route and the 2015 Conceptual Planning alignment for the eastern segment of the route between S. KGB Road and east of Church Road. This route has the least curvature of the draft alternative corridor alignments as it passes through undeveloped land. The eastern terminus is at the Parks Highway/S. Seward Meridian Parkway offramp, and the western terminus is at approximately the Parks Highway MP 51.50, which is west of the 2015 Conceptual Planning and Dark Blue routes. The route is approximately 12 miles long.

Moving east to west, the route begins south of the Parks Highway off-ramp north of the northern entrance to Walmart. It continues west crossing developed properties and S. Scotty Circle, E. Southview Drive, E. Mikey Circle, E. Old Matanuska Road, and the Alaska Railroad. The route continues southwest, remaining south of the Alaska Railroad and north of developed parcels, until it intersects with S. Bay View Drive.
The route crosses developed properties and Cottonwood Creek, intersecting with S. KGB Road and S. Fern Street. The route continues east for one mile before crossing undeveloped land, a gravel pit, and S. Endeavor Street. The route proceeds along W. Mill Site Circle, W. Charles Otto Avenue, and crosses S. Clapp Street, a gravel pit, Lucille Creek, and S. Foothills Boulevard.

Continuing west, the route stays south of parcels along W. Hidden Paradise Road and north of Lucille Creek crossing S. Vine Road and continuing west for one mile until it intersects S. Sylvan Road. In this segment the route impacts properties near W. Shady Grove Lane, W. Creeksedge Drive, and S. Countrywood Drive. The route continues southwest for one and one-quarter miles, before curving northwest and crossing over S. Leora Drive. The route ends at the intersection with the Parks Highway at MP 50.75.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Purple Route Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 143 wetlands / 67.13 acres impacted
- 36 waterbodies / 1.68 acres impacted

500-foot corridor

- 216 wetlands / 122.44 acres impacted
- 64 waterbodies / 6.17 acres impacted

Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Purple Route ROW Impacts (Preliminary) | 300-ft Corridor | 500-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 162 | 202 |
| Number of Privately Held Parcels Potentially Impacted | 153 | 190 |

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Figure 5: Purple Route


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## Orange Route

## Route Description

The Orange Route parallels the existing Parks Highway at an offset of approximately one- to one-and-a-half miles south. This route is a relatively straight alignment with minimal curvature, maximizing the use of E. Fairview Loop and joining Johnson Road with a straight-line connection primarily through undeveloped land. The eastern terminus is at the Parks Highway and Hyer Road intersection, and western terminus is at the Parks Highway MP 51.50. The route is approximately 14.5 miles long.
Moving east to west, the Orange Route begins at the existing Parks Highway and Hyer Road intersection and mimics the Dark Blue route as it crosses the Alaska Railroad, until it reaches Togiak Avenue. From Togiak Avenue, the route continues west along Leota Street through residential subdivisions. After the S. KGB Road and W. Edlund Road intersection it follows S. KGB Road for onehalf mile and then separates heading west through several residential subdivisions and undeveloped land east of S. Foothills Boulevard. After crossing Foothills Boulevard, the route continues west primarily through undeveloped land crossing Vine Road and Lucille Creek multiple times. The route then curves north and continues on S. Johnson Road until it intersects with Parks Highway at MP 51.50.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Orange Route Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 173 wetlands / 107.99 acres impacted
- 23 waterbodies / 2.61 acres impacted

500-foot corridor

- 229 wetlands / 173.60 acres impacted
- 31 waterbodies / 5.57 acres impacted

Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

[^2]Preliminary ROW Impacts

| Orange Route ROW Impacts (Preliminary) | $\mathbf{3 0 0}$-ft Corridor | $\mathbf{5 0 0}$-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 343 | 412 |
| Number of Privately Held Parcels Potentially Impacted | 328 | 389 |



Figure 6: Orange Route


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## Existing Infrastructure Routes

## Green Route

## Route Description

The Green Route parallels the existing Parks Highway at an off-set of approximately two- and-a-half to three miles south. It uses a combination of undeveloped land and existing roads including E. Fairview Loop Road and W. Hollywood Road. It's eastern terminus is at the Parks Highway and Hyer Road Interchange, and western terminus is at the Parks Highway MP 52.50. The route is approximately 17.2 miles long.

Moving east to west, the Green Route begins at the Parks Highway and Hyer Road interchange and is similar to the Dark Blue route as it continues west along E. Fireweed Road and crosses the Alaska Railroad near the existing Fairview Loop and E. Old Matanuska Road intersection.

The route then crosses farmland for one mile, before intersecting with S. Davis Road above E. Gislason Drive. The route then follows E. Patty Drive and E. Fairview Loop as it heads west for approximately two miles, impacting developed private properties on both sides of the route.
The route leaves E. Fairview Loop Road in the vicinity of W. Jack Fish Road, continuing for several miles through undeveloped land until intersecting with W. Marble Way. The route runs along W. Marble Way, crossing Cottonwood Creek and W. Fairview Loop. The route continues west crossing S. KGB Road, and continuing along W. Woods Avenue, crossing S. Foothills Boulevard, and proceeding to W. Hollywood Road.
The route uses W. Hollywood Road before curving north and crossing Lucille Creek. It proceeds north, impacting the east side of parcels along $S$. Winterhaven Drive.
Staying South of Johnson Pond, the route curves northwest crossing W. Benedict Way, S. Schnell Lane, W. Padre Pio Road, and Big Lake Road. The route continues north curving slightly west until in intersects with the Parks Highway at MP 52.50.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Green Route Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 172 wetlands / 106.42 acres impacted
- 28 waterbodies / 2.73 acres impacted

500-foot corridor

- 241 wetlands / 179.03 acres impacted
- 46 waterbodies / 6.47 acres impacted

Route with the greatest acreage of wetlands impacted.
Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

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* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Green Route ROW Impacts (Preliminary) | 300-ft Corridor | 500 -ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 463 | 542 |
| Number of Privately Held Parcels Potentially Impacted | 447 | 525 |

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Figure 7: Green Route


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## Yellow Route (Variation of Green Route)

## Route Description

The Yellow Route follows the same route as the Green Route with two variations. This route also parallels the existing Parks Highway at an offset of approximately two- and-a-half to three miles south. The eastern terminus is at the existing Parks Highway and Hyer Road Interchange, and western terminus is at the Parks Highway MP 52.50. The route is approximately 15.5 miles long.
Like the Green Route, moving east to west, the Yellow Route begins at the existing Parks Highway and Hyer Road interchange, and continues west on E. Fireweed Road. The first variation is in the vicinity of $S$. Davis Road and E. Gislason Drive. At this location the route deviates from the Green Route, continuing along S. Davis Road and staying north of Reedy Lake, until it intersects with E. Fairview Loop.

The Yellow Route leaves Hollywood Road about one mile east of the Green Route departure point. It uses undeveloped land as it heads northwest, crossing Lucille Creek before connecting to S. Johnson Road near W. Schulz Drive. The route proceeds along S. Johnson Road impacting properties along Lincoln Village Airpark and along the left side of the existing road until it intersects the Parks Highway near milepost 52.50.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Yellow Route Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 110 wetlands / 68.86 acres impacted
- 16 waterbodies / 2.03 acres impacted

500-foot corridor

- 153 wetlands / 118.37 acres impacted
- 22 waterbodies / 3.29 acres impacted



## Yellow Route Evaluation

Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.

* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Yellow Route ROW Impacts (Preliminary) | 300-ft Corridor | 500-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 395 | 461 |
| Number of Privately Held Parcels Potentially Impacted | 377 | 443 |

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Figure 8: Yellow Route (Variation of Green Route)


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## Pink Route (Variation of Green Route)

## Route Description

The Pink Route is another variation on the Green Route, which differs by using S. KGB Road south and west to Sunset Avenue, and then continuing west along Sunset Avenue. This route parallels the existing Parks Highway at an offset of approximately two- and-a-half to three miles south. The eastern terminus is at the Parks Highway/S. Hyer Road Interchange, and western terminus is at the Parks Highway MP 52. 50. The route is approximately 18.0 miles long.

The route curves north near the end of Sunset Avenue, crossing over S. Preston Hills Drive, W. Meadow Vista Drive and W. Hollywood Road. It then continues north on the Green Route until its intersection with the Parks Highway at MP 52.50.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

```
Pink Route Evaluation
Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404
regulations* include the following:
300-foot corridor
    - }203\mathrm{ wetlands / 70.75 acres impacted
    - }32\mathrm{ waterbodies / 2.80 acres impacted
500-foot corridor
    - 277 wetlands / 121.03 acres impacted
    - 51 waterbodies / 6.17 acres impacted
Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.
```

* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Pink Route ROW Impacts (Preliminary) | $\mathbf{3 0 0}$-ft Corridor | 500-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 484 | 618 |
| Number of Privately Held Parcels Potentially Impacted | 467 | 595 |

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Figure 9: Pink Route (Variation of Green Route)


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## Light Blue Route(Variation of Green and Orange Routes)

## Route Description

The Light Blue Route maximizes the use of existing roadways and follows the Orange and Green Routes in some segments. This route parallels the existing Parks Highway at an off-set of approximately two- and-a-half to three miles south. The eastern terminus is at the Parks Highway/Hyer Road interchange, and western terminus is at the Parks Highway MP 51.50. The route is approximately 15.6 miles long.
Moving east to west the route begins at the Parks Highway and S. Hyer Road interchange and follows the same route as the Orange Route west to S. KGB Road. Here, the route follows S. KGB Road south and west until it intersects with W. Hollywood Road. It then follows the W. Hollywood Road (the same as the Green Route) until it curves north, west of Dawn Lake, and ties into S. Johnson Road. The route uses the existing alignment of S. Johnson Road, connecting to the Parks Highway at the same location as the Orange and Yellow Route at MP 51.50.

## Preliminary Estimate of Potential Impacts to Wetlands/Waterbodies

## Light Blue Evaluation

Potential direct affects to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations* include the following:
300-foot corridor

- 141 wetlands / 41.24 acres impacted
- 24 waterbodies / 3.34 acres impacted

500-foot corridor

- 171 wetlands / 70.77 acres impacted
- 29 waterbodies / 6.28 acres impacted
- Wetland and waterbody impacts will be minimized or avoided where practicable as the route is further developed and refined.
* Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project
phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Preliminary ROW Impacts

| Light Blue ROW Impacts (Preliminary) | 300-ft Corridor | 500-ft Corridor |
| :--- | :--- | :--- |
| Number of Parcels Potentially Impacted | 486 | 595 |
| Number of Privately Held Parcels Potentially Impacted | 472 | 575 |

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Figure 10: Light Blue Route (Variation of Green and Orange Routes)


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## Level 1 Screening For All Routes

Table 1: Level 1 Screening: "Fatal Flaw" - All Draft Alternative Alignment (colored) Routes addresses the screening criteria for all of the colored routes. The No Build and Widening Existing Parks Highway alternatives are addressed in Table 2: Screening Level 1: "Fatal Flaw" No Build Alternative and Table 3: Screening Level 1: "Fatal Flaw" - Widening Existing Parks Highway Alternative The screening criterion not addressed in the tables is for potential wetland/waterbody impacts. The previous discussions for each the Draft Alternative Alignment (colored) routes include a Preliminary Estimate of Potential Impacts to Wetlands / Waterbodies table that provides information on potential direct affects of the route to wetlands or waterbodies that may be regulated by the Clean Water Act, Section 404 regulations. Potential wetland and waterbody impacts are not considered for fatal flaws in Level 1 Screening, but will continue to be reviewed quantitatively for fatal flaws as the alternatives are further refined and evaluated in future screening levels.
Each of the tables include a brief evaluation of how each criterion does or does not meet the P\&N for the Draft Alternative Alignments. A "pass" or "fail" ranking is then assigned to each criterion.
Table 3 evaluations shown in red text are potential areas of concern. These concerns will be evaluated in greater detail in future screening levels.

The Level 1 Screening Criteria are the same for all alignments in all three tables.

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Table 1: Screening Level 1: "Fatal Flaw" - All Draft Alternative Alignment (colored) Routes

| Screening Criteria | Evaluation | Pass/ Fail |
| :---: | :---: | :---: |
| Purpose and Need |  |  |
| Potential to improve safety for vehicles, pedestrians, and bicyclists | All alternative alignments would be a new facility, designed with features to improve vehicular safety and reduce crashes. Safety features include controlled access and divided highway lanes. Dividing a highway, combined with controlled access has been found to improve safety with reduced head-on collisions. National and Alaska statewide statistics show controlled access freeways have lower fatality rates per vehicle miles traveled compared to principal arterial facilities. <br> A new facility can also incorporate pedestrian and bicyclist safety features such as separated multi-use paths and pedestrian overcrossings. | Pass |
| Potential to reduce existing traffic congestion on Parks Highway | All alternative alignments are separated from the existing Parks Highway and have the potential to reduce congestion by moving through traffic and regional traffic off Parks Highway and on to the new facility. It is estimated over 9,000 trips per day would move to the new alignment based on existing traffic volumes. | Pass |
| Potential to reduce delay at intersections on Parks Highway | All alternative alignments are separated from Parks Highway and have the potential to reduce intersection delay, by moving through traffic off the existing Parks Highway to the new alignment. | Pass |
| Adds capacity to meet transportation demand in the corridor | All alternative alignments are proposed as a four-lane facility (two lanes in each direction) that would increase capacity to meet current and future travel demand. | Pass |
| Separates local, regional, and through trips | All alternative alignments are separated from Parks Highway and have the potential to separate local traffic from regional and through trips. This would be done by moving regional and through trips to the new alignment while allowing local trips to continue to use the existing Parks Highway corridor. <br> It is estimated over 9,000 trips per day would move to the new alignment based on existing traffic volumes. Estimating how much traffic is likely to use an alternative corridor is highly dependent on where connections with the Parks Highway and crossroad interchanges are assumed to be located. As the number of interchanges on the new alignment increases, more traffic would shift from existing roadways to the new alignment. The likely range of traffic shift is 30,400 with all interchanges (Vine Road, Fern Street and Clapp Street interchanges), 28,100 with Fern Street and Clapp Street interchanges only, and 22,600 with Fern Street interchange only. | Pass |


| Screening Criteria | Evaluation | Pass/ Fail |
| :---: | :---: | :---: |
| Potential to improve travel time for all users and in particular freight users | All alternative alignments are separated from Parks Highway and have the potential to improve travel time by moving through and regional traffic, including freight traffic, off Parks Highway and on to the new facility. <br> As a controlled access facility and freeway, average speeds on the new alignment will tend to be higher due to higher design speeds wider lanes and shoulders, roadside design features, larger curve radii, and uninterrupted flow . <br> The Purple Route has the shortest distance in offset from the existing Parks Highway, further reducing time needed to travel to the new facility from the existing Parks Highway. | Pass |
| Provides flexibility and multi-modal travel opportunities | For all alternative alignments this will be a new facility with the potential to incorporate multimodal design features including park-and-ride facilities and pedestrian and bicyclist facilities. | Pass |
| Potential to decrease annual fatal and serious injury crashes | Between 2017 and 2019, two-thirds of the fatalities and serious injuries on existing Parks Highway are intersection-related. All alternative alignments are separated from Parks Highway and have the potential to reduce congestion and improve intersection performance on Parks Highway by moving traffic to a new alignment. Moving traffic to a new alignment will also potentially decrease intersection related crashes and associated fatalities. <br> As a new facility, all alternative alignments would be designed with features to improve vehicular safety and reduce crashes. Safety features include controlled access, and divided highway lanes. Dividing a highway, combined with controlled access has been found to improve safety with reduced head-on collisions. National and Alaska statewide statistics show controlled access freeways have lower fatality rates per vehicle miles traveled compared to principal arterial facilities. | Pass |
| Improves modal options for all users | This would be a new facility, which has the potential to incorporate multimodal design features for all users including park-and-ride facilities and pedestrian and bicyclist facilities. | Pass |
| Is practical and implementable | Based on this screening this alignment appears to be practical and implementable. | Pass |
| Regulatory: Section 4(f) - Historic and Cultural Sites |  |  |
| Does not directly affect listed or eligible Section 4(f) historic or cultural resources | There are no direct effects to listed or eligible Section 4(f) historic or cultural resources. | Pass |



## No Build Alternative

## Route Description

The No Build Alternative is the existing Parks Highway, which is generally a two-lane paved facility with additional lanes beginning and ending periodically to accommodate passing and turning movements and to provide local access. Traffic signals are located at the following intersections:

- Parks/Hermon Road (urban core intersection)
- Parks/Palmer-Wasilla Highway (urban core intersection)
- Parks/Crusey Street (urban core intersection)
- Parks/Wasilla-Fishhook/S. KGB (urban core intersection)
- Parks/Lucille St (urban core intersection)
- Parks/Weber Dr (urban core intersection)
- Parks/Lucus Rd/Hallea Ln (urban core intersection)
- Parks/Deskas St (urban core intersection)
- Parks Church Rd/Mack Dr
- Parks/Stanley Rd
- Parks/Vine Rd
- Parks/Pittman Rd/Sylvan Rd

Congestion occurs along the Parks Highway through Wasilla, KGB Road to Clapp Road, and the Palmer-Wasilla Highway. Severe and fatal crashes generally occur along the higher-speed, higher access corridors within the study area, such as the Parks Highway, Knik-Goose Bay Road, and Vine Road. The sustained high rate of population growth in the Mat-Su Valley has increased traffic volumes and created significant traffic congestion and delay on the Parks Highway during peak periods. This is particularly problematic in Wasilla, because the highway serves as the main travel corridor for the City of Wasilla. Future traffic is expected to steadily increase as the population of Wasilla and the surrounding area continues to grow.
There is a system-wide lack of north/south and east/west arterial and collector streets that strains the existing network. Primary east-west corridors are not well connected to primary north-south corridors resulting in an inadequate arterial and collector grid system both north and south of the Parks Highway. This discontinuity further impedes traffic circulation within the Wasilla area.

The No Build Route preserves this existing condition with no changes made to the highway. The expected growth in future traffic would increase congestion along the Parks Highway and surrounding network above current levels. With the growth in traffic, the severe and fatal crashes along the higherspeed and higher access corridors are also expected to increase.

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# PaRRS HIGHWay 

Alternative Corridor PEL Study


Figure 10: No Build Alternative


## PaRKS HIGHWMY <br> Alternative Corridor PEL Study

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Table 2: Screening Level 1: "Fatal Flaw" - No Build Alternative

| Screening Criteria | Evaluation | Pass/Fail |
| :---: | :---: | :---: |
| Purpose and Need |  |  |
| Potential to improve safety for vehicles, pedestrians, and bicyclists | Fatal and serious injury crash rates are currently above predicted levels on existing Parks Highway as compared to those seen on comparable facilities. Crash levels are expected to continue to increase as traffic volume increases. With no improvements to the highway, safety for vehicles, pedestrians and bicycles would be expected to further deteriorate. | Fail |
| Potential to reduce existing traffic congestion on Parks Highway | With no improvements to the existing Parks Highway, there is no option for adding capacity to the facility to reduce congestion. | Fail |
| Potential to reduce delay at intersections on Parks Highway | Increasing congestion on existing Parks Highway would continue to increase travel inefficiencies and delays at intersections. High traffic volumes on intersecting roadways also contribute to low average speeds and long vehicle queues at intersections. | Fail |
| Adds capacity to meet transportation demand in the corridor | With no improvements to existing Parks Highway, there is no option for adding capacity to the facility to meet future transportation demand. | Fail |
| Separates local, regional, and through trips | Continuing use of the existing Park Highway with no improvements does not allow for the additional lanes needed to separate local from regional and through traffic. | Fail |
| Potential to improve travel time for all users and in particular freight users | Deteriorating roadway conditions on the existing Parks Highway will continue to cause travel inefficiencies and worsen travel time and delays for all users, including freight users. | Fail |
| Provides flexibility and multimodal travel opportunities | Continuing use of the existing Park Highway with no improvements does not allow for improving multi-modal travel opportunities. | Fail |
| Potential to decrease annual fatal and serious injury crashes | Serious and fatal crashes can be expected to increase on existing Parks Highway as traffic volume increases. Between 2017 and 2019, two-thirds of the fatalities and serious injuries on the existing Parks Highway were intersection-related. Without improvements to intersections, the potential to decrease fatal and serious injury crashes is unlikely. | Fail |
| Improves modal options for all users | Continuing use of the existing Park Highway with no improvements does not allow for improving modal options. | Fail |
| Is practical and implementable | With no improvements, the existing Parks Highway does not offer the option to increase safety and capacity, reduce congestion and delay including intersection delay, separate local from regional and through traffic, improve travel time, increase flexibility and multi-modal travel opportunities, or meet future transportation demand, and is therefore not a practical and implementable option. | Fail |


| Screening Criteria | Evaluation | Pass/Fail |
| :--- | :--- | :--- |
| Regulatory: Section 4(f) - Historic and Cultural Sites and Section 404 |  |  |
| Does not directly affect listed or <br> eligible Section 4(f) historic or <br> cultural resources | With no improvements to existing Parks Highway, there would be <br> no new direct effects to listed or eligible Section 4(f) resources. | Pass |
| Does not directly affect <br> wetlands or waterbodies <br> regulated by the Clean Water <br> Act, Section 404 regulations | With no improvements to existing Parks Highway, there would be <br> no new direct effects to wetlands or waterbodies regulated by the <br> Clean Water Act, Section 404 regulations. | Pass |

## Widen Existing Parks Highway

A Widen Existing Parks Highway alternative would add lanes in each direction to the existing facility, and potentially add median restrictions. These additional lanes would add capacity to the system and relieve future congestion through parts of the study area. These areas include on the east end from Hyer Road to about Seward Meridian Parkway, and on the west end from the Meadow Lakes area west to Hawk Lane. The addition of median restrictions would improve safety on the facility.
Between Seward Meridian Parkway and Meadow Lakes, the existing Parks Highway transitions to a lower speed dense urban corridor featuring additional lanes beginning and ending periodically to accommodate passing and turning movements and to provide local access. Numerous signalized intersections provide at grade crossings in the north-south direction resulting in Parks Highway traffic stopping frequently at signals. Traffic signals are located at the following intersections:

- Parks/Hermon Road (urban core intersection)
- Parks/Palmer-Wasilla Highway (urban core intersection)
- Parks/Crusey Street (urban core intersection)
- Parks/Wasilla-Fishhook/S. KGB (urban core intersection)
- Parks/Lucille Street (urban core intersection)
- Parks/Weber Drive (urban core intersection)
- Parks/Lucus Rd/Hallea Lane (urban core intersection)
- Parks/Deskas Street (urban core intersection)
- Parks Church Rd/Mack Drive
- Parks/Stanley Road
- Parks/Vine Road
- Parks/Pittman Rd/Sylvan Road

The corridor is also densely developed and includes parallel frontage roads and numerous businesses fronting the system. Widening the existing facility does not relieve or remove the existing congestion

associated with the dense development and frequent signals along the corridor, but it will provide additional capacity for existing traffic and projected traffic growth.

The Widen Existing Parks Highway alternative would follow the same route as the No Build alternative as shown in Figure 10.

Table 3: Screening Level 1: "Fatal Flaw" - Widen Existing Parks Highway Alternative

| Screening Criteria | Evaluation | Pass/ <br> Fail |
| :--- | :--- | :--- |
|  | Purpose and Need |  |
| Potential to improve safety <br> for vehicles, pedestrians, <br> and bicyclists | Between 2017 and 2019, two-thirds of the fatalities and serious <br> injuries on existing Parks Highway are intersection-related. <br> Between Seward Meridian Parkway and Meadow Lakes there <br> are numerous signalized intersections. Widening the existing <br> facility does not relieve or remove the existing congestion <br> associated with the dense development and frequent signals <br> along the corridor. As a result, the high rate of fatalities and <br> serious injuries at intersection related crashes is likely to <br> continue. <br> Partially widening the existing Parks Highway has limited <br> potential for improving safety. Safety features such as controlled <br> access and divided highway lanes would not be included, which <br> improve safety, including a reduction in head-on collisions. | Fail |
| Potential to reduce existing <br> traffic congestion on Parks <br> Highway | With limited widening of existing Parks Highway, there is the <br> potential to reduce congestion somewhat, however portions of <br> the highway would remain unchanged, with increasing <br> congestion where widening is not an option. | Fail |
| Potential to reduce delay at <br> intersections on Parks <br> Highway | Numerous signalized intersections provide at-grade crossings in <br> the north-south direction resulting in Parks Highway traffic <br> stopping frequently at signals during peak hour traffic. These <br> signals are placed along the highway between Seward Meridian <br> Parkway and Meadow Lakes, where widening the existing facility <br> does not relieve or remove the existing congestion associated <br> with the dense development and frequent signals along the <br> corridor. | Fail |



| Screening Criteria | Evaluation | Pass/ <br> Fail |
| :--- | :--- | :--- |
| Potential to improve travel <br> time for all users and in <br> particular freight users | Widening the existing Parks Highway has the potential to add <br> capacity, but it will not remove delay and friction associated with <br> the signalized intersection and access points along the highway. <br> These elements impact travel time reliability for all users that <br> will not be able to be significantly improved by widening the <br> existing highway. | Fail |
| Provides flexibility and <br> multi-modal travel <br> opportunities | Due to the narrow existing right-of way-and constraints from <br> development along the route, there is limited potential to <br> improve multimodal facilities along the existing Parks Highway. <br> Also, the current Highway has numerous accesses along the | Fail |
| length of the route, which hinder the provision of and |  |  |
| comfortable use of non-motorized facilities. |  |  |$|$| Potential to decrease |
| :--- |
| annual fatal and serious |
| injury crashes | | Between 2017 and 2019, two-thirds of the fatalities and serious |
| :--- |
| injuries on the existing Parks Highway are intersection-related. |
| Between Seward Meridian Parkway and Meadow Lakes there |
| are numerous signalized intersections. Widening the existing |
| facility does not relieve or remove the existing congestion |
| associated with the dense development and frequent signals |
| along the corridor. As a result, the high rate of fatalities and |
| serious injuries at intersection related crashes is likely to |
| continue. |
| Partially widening existing Park Highway has limited potential for |
| improving safety. Safety features such as controlled access, and |
| divided highway lanes, would not be included, which have been |
| found to improve safety, including a reduction in head-on |
| collisions. |$\quad$.


| Screening Criteria | Evaluation | Pass/ <br> Fail |
| :--- | :--- | :--- |
| Water Act, Section 404 <br> regulations * |  |  |

* Note: wetland mapping has not been completed to the level of detail that shows jurisdiction under the Clean Water Act. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.


## Draft Alternative Alignment Recommendations

Upon completion of the analysis for Level 1 Screening: Fatal Flaw, the project team finds that all Draft Alternative Alignments, except the No Build alternative (existing Parks Highway), meet the project P\&N, are technically feasible, practical, and implementable, and based on currently available data, meet specific regulatory requirements. The project team recommends all Draft Alternative Alignments, except the No Build alternative, move forward as Preliminary Alternatives to Level 2 Screening, for further alignment refinement and analysis. The project team will continue to review the Preliminary Alternatives for fatal flaws as they are refined. The project team will also continue to review the project $P \& N$, throughout the PEL process and update it if project needs change or additional needs are identified change. The project team finds Level 1 Screening: Fatal Flaw for the No Build Alternative, as shown in Figure 10, fails for all criteria, except the regulatory criteria for Section 4(f) historic/cultural resources and Clean Water Act, Section 404. As a result, the No Build Alternative will only move forward as an alternative to assist with providing a baseline on the evaluation of conditions.

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# PARKS HIGHWAY 



## Appendix A

## Purpose and Need

Alternative Corridor PEL Study


## PURPOSE AND NEED

## Introduction

The State of Alaska Department of Transportation and Public Facilities (DOT\&PF) has identified the need for a future alternative highway corridor in the Wasilla area of the Matanuska-Susitna (Mat-Su) Borough to relieve congestion and improve safety on the George Parks Highway (Parks Highway). The sustained high rate of population growth in the Mat-Su Valley has increased traffic volumes and created significant traffic congestion and delay on the Parks Highway during peak periods. This is particularly problematic in Wasilla, because the highway serves as the main travel corridor for the City of Wasilla and it is also one of the most important transportation facilities in Alaska for commerce, recreation, tourism, and community connection. With its National Highway System (NHS), Interstate System and National Scenic Byway designations, the Parks Highway provides access to natural and recreational area, including the Denali National Park and Preserve (DNP), while also supplying a critical freight route between Anchorage and Fairbanks.

DOT\&PF has undertaken the Parks Highway Alternative Corridor Planning and Environmental Linkage (PEL) Study to identify and evaluate a potential alternative corridor (or corridors) to realign and construct a new higher functioning Parks Highway facility. The PEL process allows for a smooth transition of decisions and planning products to a future National Environmental Policy Act (NEPA) environmental review process. Planning products prepared for this PEL Study that may be incorporated by reference or adopted in a later NEPA or permitting process include:

- Purpose and Need Statement
- Recommended alternatives screening and elimination of unreasonable alternatives
- Basic description of the environmental setting
- Preliminary identification of environmental impacts and environmental mitigation.

The improvements needed to accommodate existing and future transportation needs will come with a wide variety of environmental resource, transportation, land use, and public involvement challenges. The PEL process will address these challenges while building on prior planning studies that have taken place since the 1980's. The most recent effort was the Parks Highway Alternative Corridor Project Conceptual Planning Report (April 2015), which investigated options for a bypass of the greater Wasilla area and presented the results of work to evaluate the viability of an alternative corridor and examine the economic value of a bypass compared to widening the existing Parks Highway and to a "no improvement" option. The Conceptual Planning Report did not progress to a preliminary design and environmental phase.
Since completion of the Conceptual Planning Report in 2015, the population and development has continued to grow and expand in the study area and greater Mat-Su Borough. This PEL Study provides a fresh evaluation of the environmental conditions, identifies current and future needs through traffic forecasting and travel demand modeling, gathers public comments, feedback, ideas, issues, and concerns, and uses new information and data to identify an alternative corridor(s) within the study area.

Opportunities for Public Participation:

- Open Houses
- Advisory Committees
- Small Group Meetings
- Newsletters
- Website
- Fact \& FAQ Sheets


## PARKS HIGHWaY



The project focuses on a segment of the Parks Highway in the Mat-Su Borough between the Hyer Road interchange and West Hawk Lane. The PEL study area is broadly bounded by ( $+500-1000$ feet) the Parks Highway to the north, Hyer Road interchange to the east, West Hawk Lane to the west, and Knik Arm to the south as shown on Figure 1, Study Area Location and Boundaries. bordered. This study area is similar to the area evaluated in earlier studies but is extended slightly to the southwest to ensure a broader range of opportunities are available for potential corridor alignments and to accommodate continuing development in this area of the Mat-Su Borough.


Figure 1: Study Area Location and Boundaries
This document presents a draft purpose and need for the Parks Highway Alternative Corridor PEL Study. Contributions by project participants, including the Technical Advisory and Stakeholder Advisory Committees and the public, helped identify study purpose and need themes and problems to be solved. Transportation system performance data and modeling projections for the Parks Highway are presented to support and explain why the study is needed. The purpose and need statement compiles and organizes these findings into a clear and supported explanation of what the study is intended to do, and why the study of an alternative corridor is needed. After the PEL Study is complete, one or more potential projects may advance for more environmental review and engineering design through the NEPA process.


## What is a Purpose and Need Statement?

One of the first major steps in the PEL process is to develop a purpose and need statement, which is a vision for the future project and supplies the basis for developing criteria for comparing and evaluating alternatives, developing a range of alternatives, and selecting a recommended alternative(s). The purpose and need statement must clearly and concisely describe the transportation problem(s) and other needs without offering a specific solution. Instead, it supplies information that will help identify solutions to the identified problem(s). The "purpose" states why DOT\&PF is proposing the study and outlines the positive outcomes they hope to achieve by proposing solutions through the PEL process. The "need" describes the key problem(s) the PEL process is addressing and explains the underlying causes of those problems.

The Project's purpose and need statement was developed using guidance provided in the following:

- Alaska Environmental Procedures Manual (Section 5.3.1)
- Alaska Highway Preconstruction Manual (Section 430.3)
- FHWA Technical Advisory T6640.8A
- AASHTO Practitioner's Handbook - Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects

Development of the purpose and need statement will follow the requirements of 23 CFR 1502.13 to ease the transition to NEPA for projects resulting from the PEL Study. These requirements include consultation of appropriate federal and state resource agencies, tribes, and the public during the development of the purpose and need statement, so it can be used to inform the development of alternatives and the PEL recommendations. The purpose and need statement is dynamic and may evolve as new information is obtained during the project development process, including ongoing input from project stakeholders and the public.

This purpose and need statement was developed by reviewing environmental, social and economic conditions in the study area, preparing system performance and origin and destination studies, and meeting with stakeholders, agencies, and the public to discuss issues and concerns, and emerging themes that affirmed the need for an alternative corridor.

## Public and Agency Involvement

Public and agency involvement is critical to developing a successful purpose and need statement. This includes involving the PEL study's Technical and Stakeholder Advisory Committees, as well as the public, Tribes, businesses, services, non-profits, and community organizations. Public and agency involvement for the purpose and need, as well as other aspects of the study, follows relevant planning regulations ${ }^{1}$ and includes:

- Establishing early and continuous public and agency involvement opportunities throughout the process that provide timely information about issues and decision making processes
- Providing opportunities for public review and comment at key decision making points
- Holding advisory and public meetings that give reasonable access to information and adequate time for review comment

[^3]

- Considering and responding to comments and input received
- Periodically reviewing the effectiveness of procedures and strategies to ensure a full and open process
- Considering the opinions, actions, and relevant information from other parties
- Cooperating with stakeholders and involved parties to work together to achieve a common goal
- Supplying timely public notices

Virtual Technical Advisory and Stakeholder Advisory Committee meetings and a Public Open House introduced the PEL process, shared background information and gave committee members and the public opportunities to comment on existing conditions. All meetings asked for input on issues and concerns, and emerging themes to be captured in the study's purpose and need. The themes stated many of the key problems experienced by Parks Highway users and observations on issues in the study area. The key items are summarized below (See Appendix A for the complete list).

## Parks Highway Function:

Local, regional, and through trips are all using Parks Highway through Wasilla.

## Travel Time Reliability:

Peak travel times are unreliable and vary widely complicating logistics for freight deliveries and arriving at destinations on time.

## Safety:

Fatal and serious injury crash rates are well above predicted levels and those seen on comparable facilities.

## Multi-Modal Transportation:

Facilities for walking and bicycling are lacking and deter use of these modes; access to transit can be challenging.

Land Use:
The pace of land used for development is steadily increasing.

Delay:
Reduced speeds during peak travel times add hours of delay to trips. As population and volumes grow, more hours of delay are likely.

## Economic Impact:

Travel time delay reduces supply chain reliability and impacts the economic function of Wasilla's urban core.

## Population Increase in the Mat-Su Borough:

Population has grown by 20 percent between 2010 and 2022 and is forecast to have continued growth.

Drawing from these themes and the performance analysis, the following project purpose and need was developed.

## Purpose

The purpose of the Parks Highway Alternative Corridor PEL study is to improve regional and local transportation through the Wasilla area of the Matanuska-Susitna Borough by identifying an alternative highway corridor that will improve safety for all transportation modes, reduce existing and future traffic congestion, and increase mobility. The study will seek to improve transportation for non-motorized users, respond to community values, and support or enhance economic, social, environmental and energy conditions.

## Need

Through a collaborative process that balances multiple viewpoints of stakeholders, agencies, and the public, and working within regulatory requirements, DOT\&PF determined that a successful solution should address the following needs:

- Improve safety in the corridor for vehicles, pedestrians, and bicyclists
- Decrease fatal and serious injury crashes
- Reduce existing traffic congestion and intersection delay on Parks Highway
- Add roadway capacity to meet projected transportation demand in the corridor
- Improve the roadway network to better separate local, regional, and through trips
- Improve efficiency for freight transport
- Improve multi-modal access and flexibility for all users
- Improve the durability of roadway improvements and ease maintenance operations

Improvements should also meet these additional goals:

- Improve the efficiency of the local and regional transportation system for all its users
- Enhance and protect the public health and safety of travelers and the communities that transportation facilities traverse
- Improve existing natural environmental conditions when possible and avoid/minimize/mitigate adverse impacts to the natural environment
- Contribute to the improvement of the economy, social fabric, and quality of life along the Parks Highway corridor and in the greater Wasilla area
- Satisfy applicable federal, state, and local plans, policies, and regulations


## Why the Study is Needed

This section details the problems a Parks Highway alternative corridor is intended to solve. It provides an overview of the current conditions experienced on the Parks Highway and includes a discussion of individual problems or needs summarized from the system performanceand origin - destination studies.

## Parks Highway Overview

The Parks Highway serves as Alaska's primary north-south roadway. It is the most direct freight route connection between the state's largest city, Anchorage, the Port of Alaska, and destinations north including Fairbanks and oil and gas operations on the North Slope. Also known as Alaska Route 3, the Parks Highway begins 35 miles north of Anchorage at the junction with the Glenn Highway and ends in Fairbanks. It is functionally classified as a rural interstate highway and is part of both the NHS and the Interstate Highway System². Congestion occurs along the Parks Highway through the City of Wasilla, with intersection delays throughout the day and particularly during morning and afternoon peak periods. Between Wasilla and Big Lake, Parks Highway is designated a Highway Safety corridor due to its high

[^4]Alternative Corridor PEL Study

crash rate. This roadway designation lowers speed limits, increases enforcement and fines, and elevates the priority for roadway improvements that will resolve the safety issues. A system-wide deficit of north/south and east/west arterial and collector streets further strains the existing roadway network when highways are used for short and/or local trips.

The primary needs or problems this PEL study addresses fall into three basic categories: safety, mobility, and facility pavement condition.

## Federal Transportation Planning Factors

Statewide transportation planning requirements are described in 23 USC Section 135. States must develop transportation plans and programs for all areas of the State, and the State of Alaska DOT\&PF does this through its LRTP, which considers all modes of transportation that functions as an intermodal transportation system. The intent of this process is to inform transportation investments and decisionmaking. A PEL study is a planning product that needs to consider the key Federally required planning factors ${ }^{3}$, which include:

1. Support the economic vitality of the United States, the States, nonmetropolitan areas and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of people and freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system across and between modes throughout the State, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve transportation system resiliency and reliability and reduce (or mitigate) the stormwater impacts of surface transportation.
10. Enhance travel and tourism.

The purpose and need for this PEL study will address many of the above planning factors, specifically those related to safety; accessibility; mobility; integration and connectivity of the transportation system; and improving system resiliency and reliability. The impacts of each alternative corridor on the federal transportation planning factors will be addressed as part of the alternative screening and evaluation criteria.

[^5]

## Safety and Crash Data

From 2013 to 2019, a total of 13 people were killed and 63 were seriously injured on the Parks Highway. ${ }^{4}$ Fatalities varied from zero to four per year, while serious injuries remained constant, except for 2015, where serious injuries were 57 percent higher than the seven-year average. No clear yearly trends were seen in the fatality or serious injury rates per vehicle miles traveled (VMT), with a seven-year fatality rate of 1.56 per 100 million VMT and a serious injury rate of 7.55 per 100 million VMT.

Locations of fatal and serious injury crashes from 2017 to 2019 are shown in Figure 1. In the most recently available three years ( 2017 to 2019), the following statistics were seen:

- Number of fatalities: 6
- Number of serious injuries: 24
- Rate of fatalities (per 100 million VMT): 1.67
- Rate of serious injuries (per 100 million VMT): 6.68
- Number of non-motorized fatalities and serious injuries: 1

Two-thirds of the fatalities and serious injuries were intersection-related. In addition, fatality and serious injury rates by segment corresponded with the percentage of crashes that were intersection-related (Table 1). Pittman Road to Hawk Lane had the highest rate and the highest intersection-related crash percentage, while Hyer Road to Broadview Avenue had the lowest rate and the lowest intersection-related crash percentage.
The 2013-2016 fatality and serious injury rate on Clapp Street to Pittman Road was 20 percent higher than in 2017-2019, potentially due to the reduction in head-on crashes following conversion to a divided highway. While seven fatalities and serious injuries occurred involving head-on collisions from 2013 to 2016, none occurred from 2017 to 2019 on this segment. Before converting the Hyer Road to Broadview Avenue segment to a divided freeway, the fatality and serious injury rate was 23.78 per 100 million VMT, similar to the rate on the Pittman Road to Hawk Lane segment. This shows that while dividing a highway can improve safety, converting to a controlled-access divided facility may cause even greater improvements to safety.
Table 1. Crash Rates and Intersection-Related Crash Percentages by Segment, 2017-2019

| Segment | Fatality and Serious Injury Rate <br> (per 100 million VMT) | Intersection-Related Crash <br> Percentage |
| :--- | :---: | :---: |
| Hyer Road to Broadview <br> Avenue | 0.00 | $0 \%$ |
| Broadview to Clapp Street | 7.73 | $67 \%$ |
| Clapp Street to Pittman Road | 5.67 | $50 \%$ |
| Pittman Road to Hawk Lane | 22.63 | $75 \%$ |

[^6]

Figure 1. Fatal and Serious Injury Crashes, 2017 to 2019

## Mobility

The mobility analysis evaluates trends in peak hour volume, vehicle speeds, and delay, as well as travel time reliability. Mobility captures how much extra time is lost due to congestion during daily commuting, how efficiently goods can be delivered to their destinations, and how much travel times vary from day-today during peak periods. Mobility has significant impacts on individuals' quality of life, freight movement logistics and resources, and retail sales for local businesses.

## Volumes, Speed and Delay

Traffic volumes have grown significantly on the Parks Highway since 2015. At the Parks Highway and Church Rd intersection, the average weekday hourly traffic volume (vehicles/hour) from 3:00-6:00 PM (i.e., PM peak period) in May through June increased by 24 percent (Figure 2). ${ }^{5}$ Traffic volume growth exceeded the population growth for Mat-Su Borough in the same years, which averaged between one and two percent non-compounding growth per year. ${ }^{6}$

[^7]


Figure 2. Change in PM Peak Period Average Hourly Traffic Volume, Parks Highway at Church Road, and Mat-Su Borough Population by Year

Speed performance was analyzed using "big data"7 for trips on the Parks Highway between Seward Meridian Highway and Lucille Street. This entire segment has a posted speed limit of 45 mph .

Figure 3 shows May 2021 vehicle speeds (shown on the left) and traffic volumes (shown on the right) by the hour of the day, for weekdays only. The data show an inverse relationship, where speeds significantly decrease as traffic volumes grow from 7:00 AM to 7:00 PM. Average speeds drop from 41 mph in the offpeak period (7:00 PM to 7:00 AM) to 31 mph in the PM peak period ( $3: 00$ to 6:00 PM). The percentage of speeds below 35 mph is 60 percent in the PM peak, compared to 33 percent in other travel periods. This peak period speed reduction causes a delay of four minutes for each trip in this segment, or a total of 12,200 vehicle-hours of delay in May 2021. By dropping below a 40 mile per hour average speed, this segment operates at a failing level-of-service (LOS) F for about eight (8) hours per day (capacity determined for two-lane highways per the Alaska Highway Capacity Manual).
In addition to volumes on the Parks Highway, high volumes on intersecting roadways, such as the PalmerWasilla Highway and Knik-Goose Bay Road, also contribute to low average speeds and long vehicle queues at intersections. From 2017 to 2019, average PM peak period volumes were 1,300 vehicles per hour on Palmer-Wasilla Highway at Trunk Road and 1,400 vehicles per hour on Knik-Goose Bay Road at Clapp Street. With these significant cross-flows, signal timing optimization is unable to significantly improve operations.

[^8]


Figure 3. Average Speed and Traffic Volumes, Seward Meridian Highway and Lucille Street, May 2021

## Travel Time Reliability

Travel time reliability refers to the day-to-day variability in travel times along a road segment within a given time period, rather than the absolute travel times. A road may have a low average travel time in the PM peak period across an entire year, but also many days and times with extremely long PM peak period travel times. Travel time reliability represents how much additional time drivers need to allocate to be confident they will arrive at destinations on time during peak period travel.

Travel time reliability is measured by the "Level of Travel Time Reliability" (LOTTR)${ }^{8}$. It is calculated by comparing long travel times to average travel times during the AM peak, midday peak, PM peak, and weekend time periods. If the LOTTR is less than 1.5 for all four periods, the segment is categorized as reliable. Commercial truck travel time reliability is measured according to the Truck Travel Time Reliability (TTTR) index. ${ }^{9}$ There is currently no established threshold value for the TTTR in which to categorize a segment as "reliable." For both measures, lower indices represent higher reliability.
The LOTTR and TTTR weighted by person miles traveled (occupancy per vehicle equal to 1.7) from 2017 to 2019 for the Parks Highway are 1.25 and 2.22, respectively. ${ }^{10}$ The percentage of PMT that is considered reliable was 90 percent. LOTTR by segment is shown in Figure 4.

Some residents have noted that freight drivers have been seen taking other routes besides the Parks Highway during peak periods to avoid congestion. Many of these routes are not designed for freight vehicles and increase the distance traveled during the trip compared to using the Parks Highway.

[^9]

Figure 4. Travel Time Reliability by Segment, 2019

## Conflicting Local, Regional and Through Travel

Functional classification groups streets and highways into classes according to the character of service they provide. Roadways generally serve one of two core functions: providing access (to businesses, residences, and other land uses) or providing for mobility (defined as movement between places). Roadways that serve only one function tend to be safer and operate more efficiently, as high access and high mobility are generally competing or conflicting purposes. The classification of a roadway has a direct connection to its design and geometric features.

The Origin-Destination Study (DOWL 2022) completed as part of the PEL Study concludes that approximately two-thirds of the trips using the Parks Highway within the study area are local trips (originating and destined within the study area). A further one-third of trips are regional trips (originating from or ending in the study area and connecting with a location outside the study area), and approximately three percent of trips are through trips (originating and ending outside the study area). Currently, the Parks Highway through Wasilla is serving trips accessing adjoining land uses (i.e., local trips) and trips moving through the area (i.e., regional or through trips), resulting in conflicts between roadway users. These conflicts are exacerbated by a limited roadway network within the study area, which results in almost all trips in the study area needing to use the Parks Highway to navigate to, from, and through the Wasilla urban core.

The Origin-Destination Study sought to evaluate what trips might move to an alternative corridor, to assist with reducing the level of congestion currently observed on the Parks Highway. If an interchange is constructed at the east and west termini of the proposed study area, it is estimated that 9,600 trips a day would move to the alternative corridor. If additional interchanges are added, the volume of traffic moving to the alternative corridor is estimated to increase as shown in Table 2.

Alternative Corridor PEL Study


Table 2. Marginal Additional Trips Shifting to an Alternative Corridor by Potential Interchange Location

| Interchanges | Marginal Additional Trips Shifting to Alternative <br> Corridor (Percentage Increase from Preceding Scenario) |
| :--- | :---: |
| Building East and West Termini | $+9,600$ trips/day |
| Adding Fern Street Interchange | $+13,000$ trips/day $(+135 \%)$ |
| Adding Clapp Street Interchange | $+5,500$ trips/day $(+24 \%)$ |
| Adding Vine Road Interchange | $+2,300$ trips/day $(+8 \%)$ |

An increased connection between the existing Parks Highway and the alternative corridor would have the benefit of separating through trips from local access trips by routing through trips to the controlled access alternative corridor facility and having the existing Parks Highway to provide local access. This would reduce congestion on the existing Parks Highway and create a safer facility.

## Pavement Condition

Per 23 Code of Federal Regulations (CFR) 490.313, pavement condition is evaluated using three variables including the international roughness index (IRI), rutting, and cracking. IRI is a measure of the comfort level experienced by the traveling public based on the pavement surface condition. Rutting is a measure of the longitudinal surface depressions in the pavement measured in inches. Cracking is defined as a separation or break in the continuous surface of the pavement section. 23 CFR 490.313 defines the thresholds for pavement conditions considered poor, fair, and good. From 2017 to 2019, 34 percent of the Parks Highway was in good condition, while 2 percent was considered poor.
The Parks Highway pavement condition may deteriorate faster than other National Highway System routes due to high intersection density and the frequent hard braking and acceleration events required when traffic signal phases change from green to red. In addition, idling at red lights increases the overall time freight trucks spend on the road thus increasing the load per trip on the pavement.

## Supporting Studies/Analyses

- Origin-Destination Study Report, dated May 2022
- Technical Memorandum: System Performance Memorandum, dated April 7, 2022


## Appendix A

## Project Themes

Alternative Corridor PEL Study

## Technical Advisory Committee Project Themes <br> Meeting \#1,

March 8, 2022

- Consider other opportunities in Wasilla Downtown Core - consider non-motorized, land use (direction City of Wasilla wants to go, and compatibility with larger facility if it is expanded)
- A limited access freeway would take pressure off downtown and support plans to increase density in downtown core.
- There are plans for an intermodal depot at the gravel pit southwest of the Parks Highway - has support, some funding, design for intermodal hub
- There is limited room for expansion of the current Parks Highway facility because of lakes and railroad right-of-way
- There are historic sites in downtown area that could be impacted by larger facility on downtown alignment.
- Opportunity for new facility to consider context sensitive solutions (i.e., Park and Ride Facility)
- Look at the City of Wasilla Comprehensive Plan policies (land use and transportation) consider how these can contribute to development of alternatives
- Carefully consider pedestrian and bicycle facilities and connection to the Wasilla urban core
- Parks/Palmer Wasilla Highway is nearing intersection failure. It is a key intersection and decisions are needed on a solution - this project needs to emphasize it/carefully consider it. An alternative corridor is needed as soon as possible. There is the potential for significant impacts to commercial properties at this intersection.
- Need a clear understanding of how much delay is in corridor, and how much is projected (travel time reliability). What are the implications of this for destinations? Is delay from through traffic or created by destinations.
- Scenarios - are we considering a scenario where there will be ongoing increase in population, or is there a possibility for slower growth, reduced growth.
- Consider multimodal use of the corridor - specifically with railroad, bicycle, and pedestrian facilities
- Increased traffic creates increased pressure on maintenance crews for the City of Wasilla

Alternative Corridor PEL Study

# Stakeholder Advisory Committee Project Themes 

## Meeting \#1

March 10, 2022

- Improving Connectivity: there needs to be a surrounding network of neighborhood and local streets so people are not using Parks Highway as a local streets
- Improving Transit: Consider Rapid Transit, more Park \& Ride Facilities
- Highway: Consider not just building a bigger highway, but improving function so Parks Highway can truly operate as a highway
- Safety and Connectivity for Multimodal Transportation: particularly consider improving facilities for biking
- Historic Properties: Protect data as we work with the public as there are many sites in project area be aware of regulations
- Bypass Project: Cooper Landing is another bypass project; there is interest in corollaries/lessons learned that can be gleaned from this project (projects have differences, but good to take a look at themes)
- Traffic Over Time: Volumes have increased, traffic improvements are hugely helpful to ease traffic issues
- Impacts to Businesses: Bypasses can impact businesses; but the existing conditions also impact businesses as travelers do not want to stop because traffic is so congested. It can take a long time to enter/exit the Parks Highway
- Crashes: major issues over time
- Maintenance: contributes to highway safety
- Commercial development: space is limited along the main corridor - commercial is likely to expand beyond the Parks Highway Corridor
- Railroad corridor: constraint to widening existing highway
- Infrastructure Act: potentially assist with funding highway (but may not be a significant infusion of funds)
- Additional Impacts: environmental costs/impacts of congestion need to be considered
- Alternate financing methods: consider whether stakeholders might have an interest in alternative ways of financing development (i.e., land value recapture financing to constrain urban sprawl, and incentivize investments in areas that are near infrastructure investments already - Transportation Research Board)

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[^0]:    ${ }^{3}$ Termini (plural), Terminus (singular), are the beginning and endpoints of a transportation line or travel route
    ${ }^{4}$ Reasonable" under Section 404 of the Clean Water Act is "based on consideration of the project purpose, as well as technology, economics, and common sense
    ${ }^{5}$ Practicable under the Section $404(b)(1)$ Guidelines (40 CFR 230) means the alternative is "available and capable of being done after taking into consideration cost, existing technology, and/or logistics in light of the overall project purpose(s)."
    ${ }^{6}$ Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. The basic premise of the program is that no discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded (Section 404(b)(1) Guidelines (40 CFR 230)).

[^1]:    * Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.

[^2]:    * Note: wetland impact numbers are based on desktop mapping. A field delineation will be conducted as part of a later project phase. Wetland impacts will continue to be reviewed for fatal flaws as the alternative corridors are refined.

[^3]:    ${ }^{1} 23$ CFR 450.210 and 450.316; DOT\&PF 2021 (Section 3.3 Public and Agency Involvement Requirements)

[^4]:    ${ }^{2}$ An interstate highway is the highest classification of roadways in the United States. Interstate highways are intended to provide the highest level of mobility and the highest speeds over the longest uninterrupted distance.

[^5]:    ${ }^{3}$ https://safety.fhwa.dot.gov/tsp/fhwasa16116/mod2.cfm Federal Transportation Planning Factors, Accessed 6/8/22.

[^6]:    4 Email Correspondence with Alaska Department of Transportation and Public Facilities staff. October 11, 2021.

[^7]:    ${ }^{5}$ Alaska Traffic Data. Alaska Department of Transportation and Public Facilities. Accessed 2021. https://alaskatrafficdata.drakewell.com/publicmultinodemap.asp
    ${ }^{6}$ Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2019. United States Census Bureau. Accessed 2021. API URL: https://api.census.gov/data/2019/pep/population
    2020 Decennial Census. United States Census Bureau. Accessed 2021. API URL: https://api.census.gov/data/2020/dec/pl

[^8]:    ${ }^{7}$ A large data set or "big data" was obtained from traffic data vendor INRIX, who collects vehicle location data from in-vehicle global positioning system (GPS) navigation and location-based mobile phone applications on a three-to-five second interval (see Parks Highway Alternative Corridor PEL Study Origin-Destination Study Report, DOWL 2022).

[^9]:    ${ }^{8}$ LOTTR is calculated by dividing the 80th percentile travel time (i.e., the travel time that is higher than 80 percent of all travel times) by the 50th percentile travel time.
    ${ }^{9}$ TTTR is calculated by dividing the 95th percentile truck travel time by the 50th percentile truck travel time, for the same time periods as the LOTTR with an additional weekday overnight category.
    10 Data obtained via email correspondence with Alaska Department of Transportation and Public Facilities Staff. November 12, 2021.

