

Federal Way Link Extension

Draft Environmental Impact Statement

NOISE AND VIBRATION TECHNICAL REPORT

Appendix G3



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Federal Way Link Extension

Noise and Vibration Technical Report

Prepared for:
Sound Transit

Prepared by:
HDR Inc.
Michael Minor & Associates, Inc.
ATS Consulting
CH2M HILL

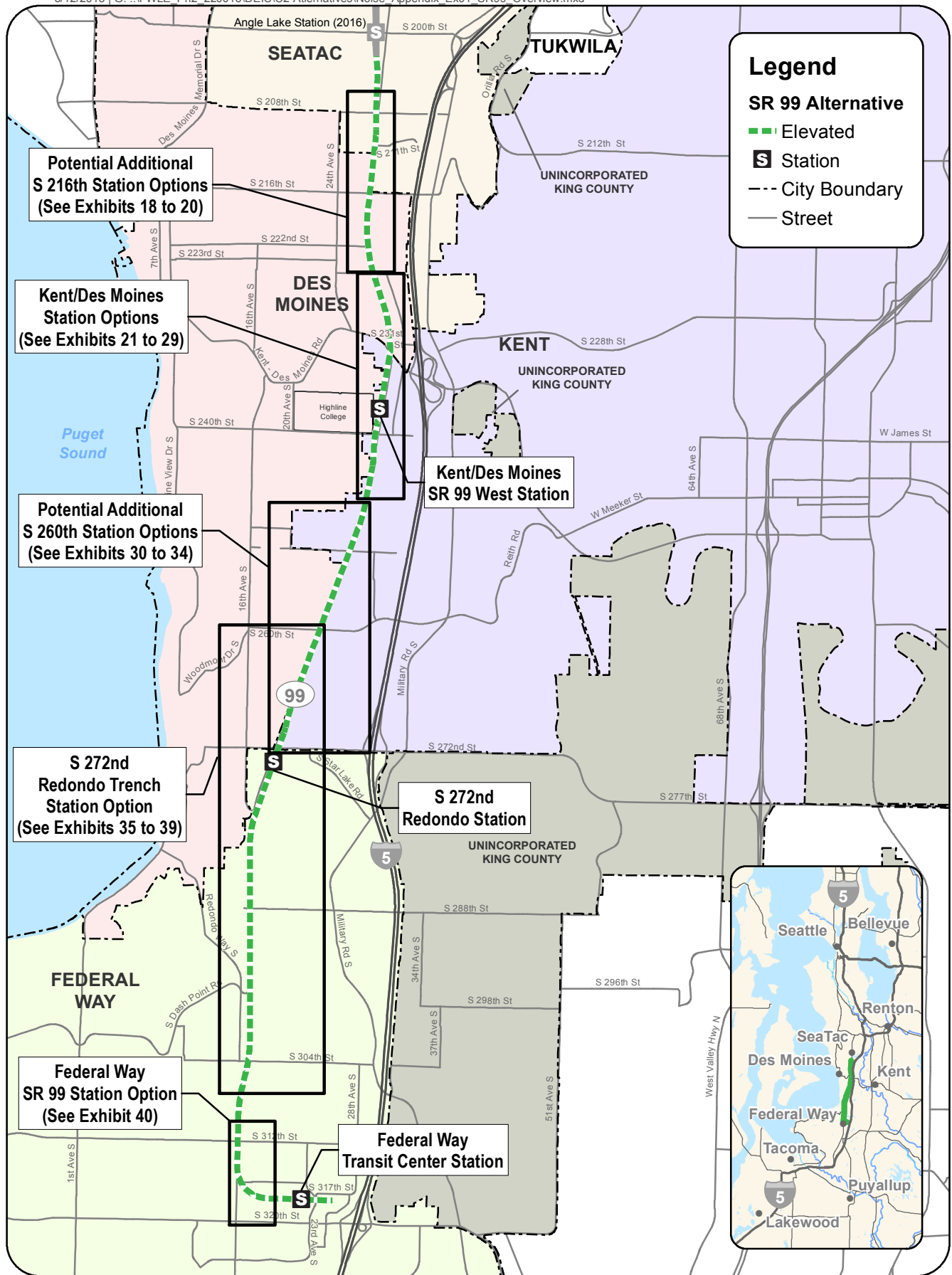
April 2015

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Appendix C
Detailed Noise and Vibration Analysis Maps

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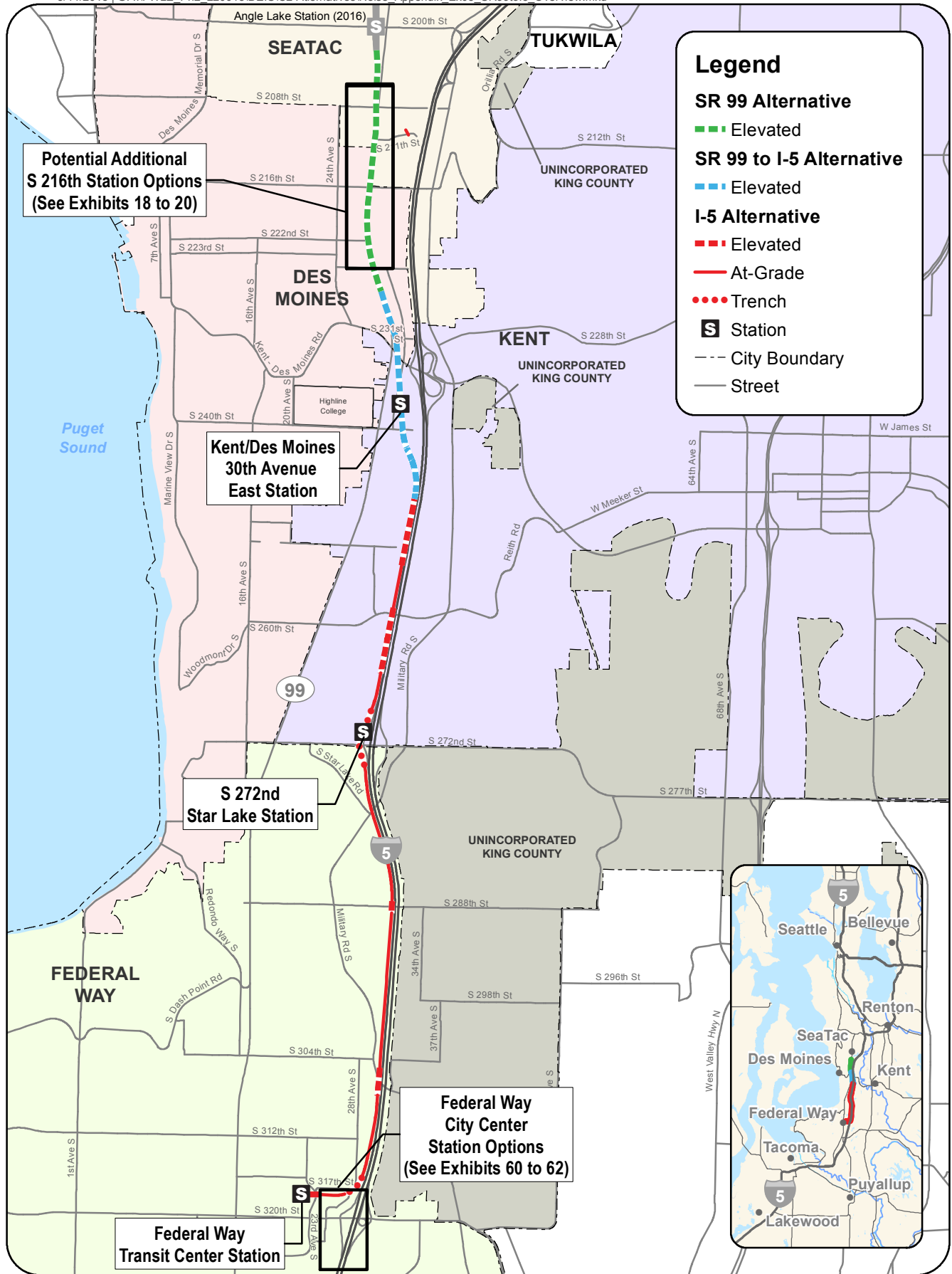
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



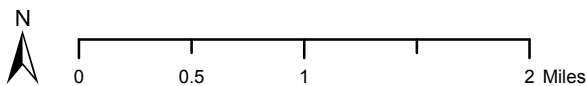
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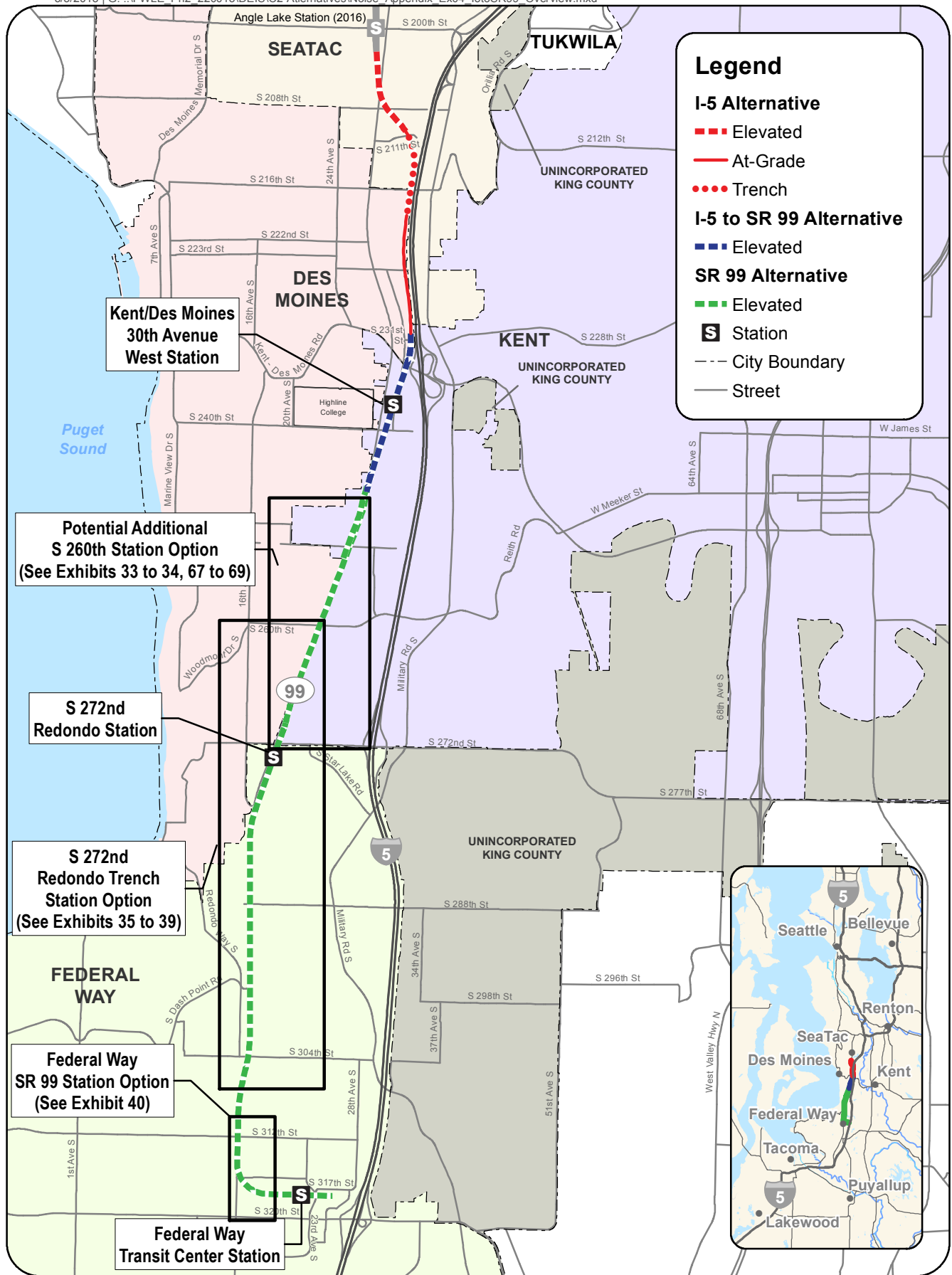
EXHIBIT C-1
SR 99 Alternative and Options

Federal Way Link Extension



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



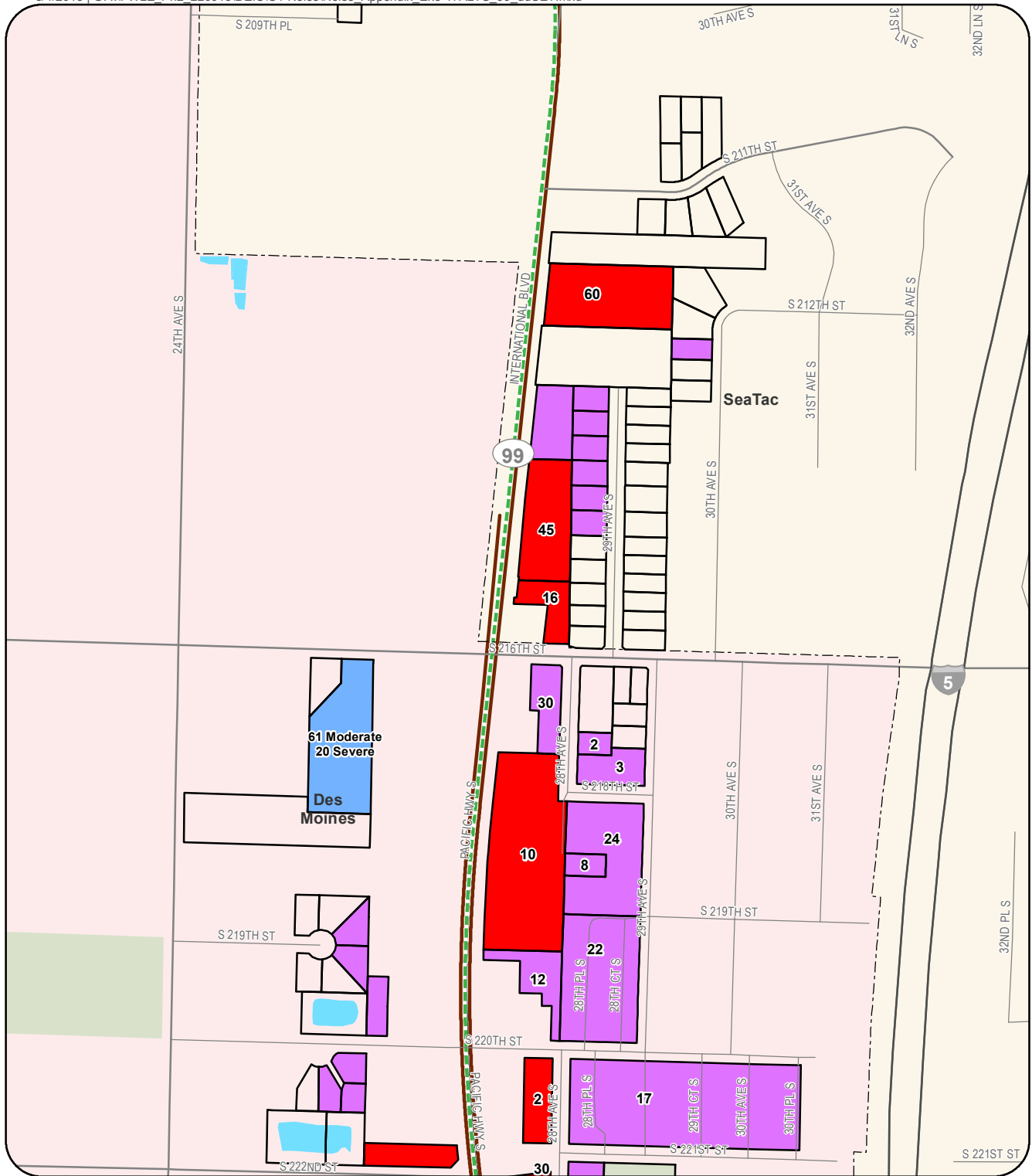


Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-4

I-5 to SR 99 Alternative

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

Station

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes:

- 1) Noise impact is 1 unit per parcel unless otherwise noted.
- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

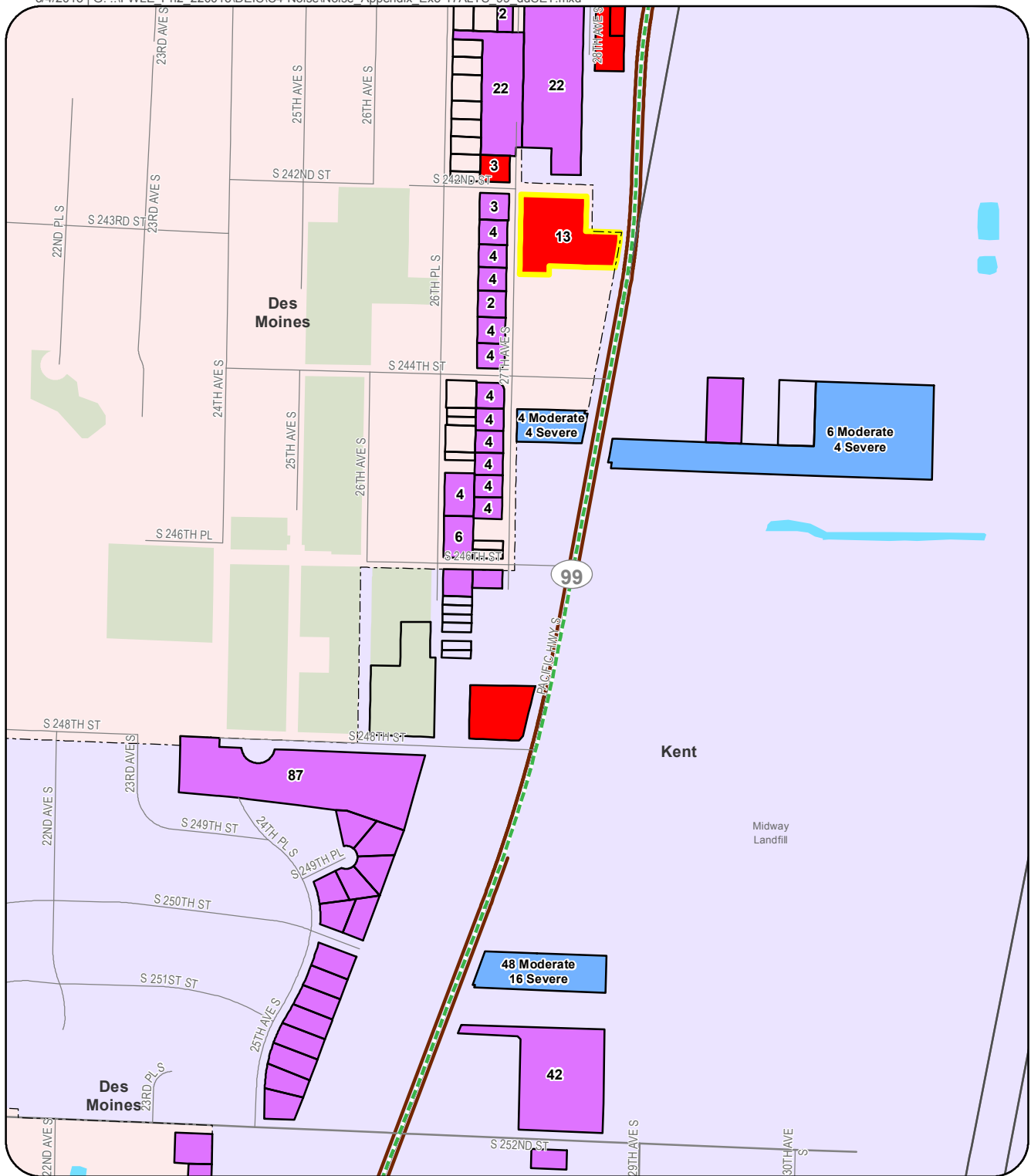
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-6

Noise Impacts

SR 99 Alternative

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

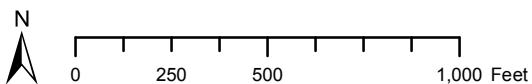
Residual Noise Impact Requiring Sound Insulation

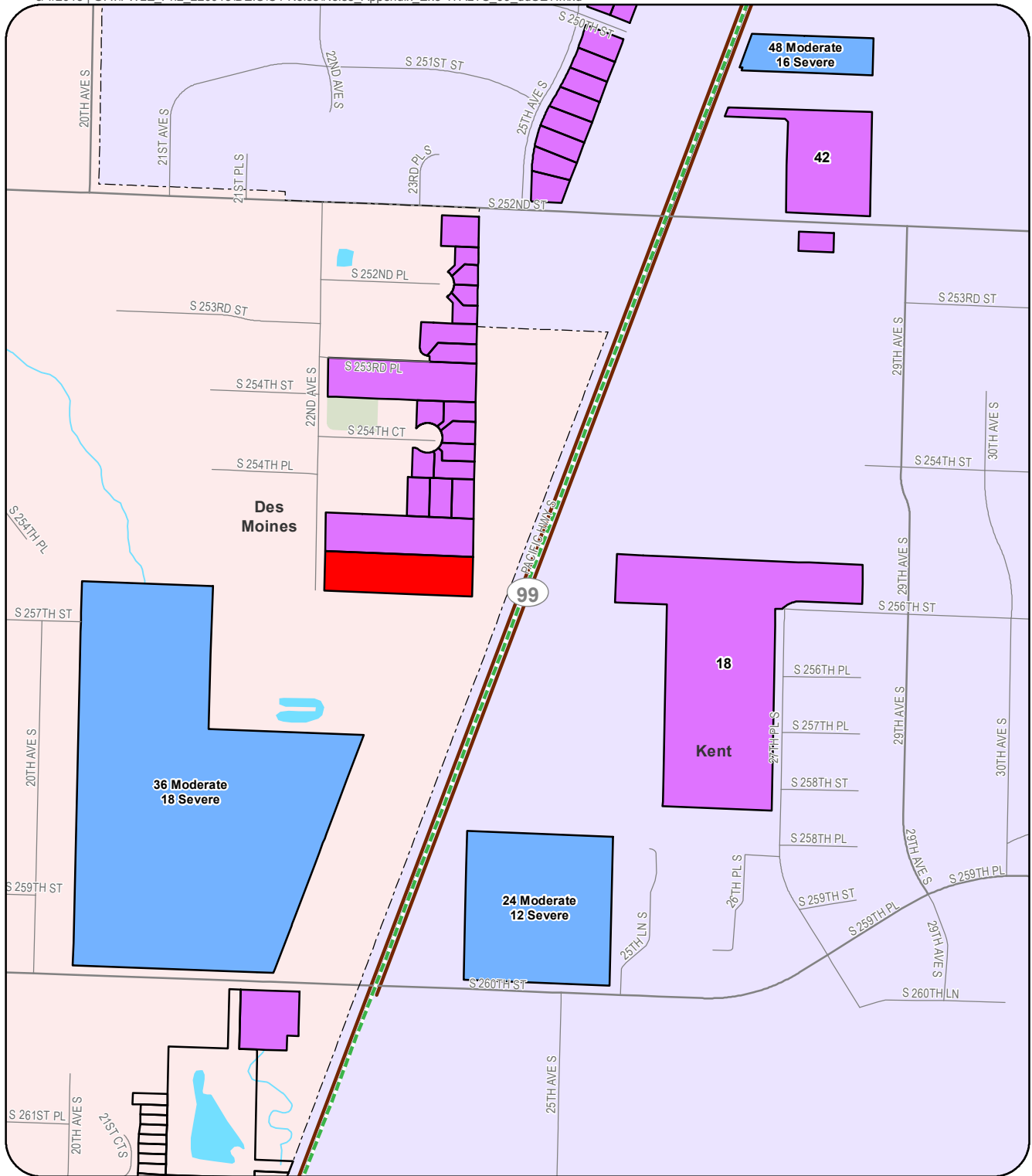
Sound Walls

Notes:

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- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





SR 99 Alternative

--- Elevated

S Station

--- City Boundary

— Street

— Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

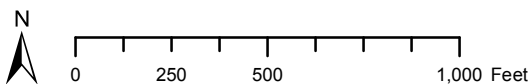
Both Moderate and Severe

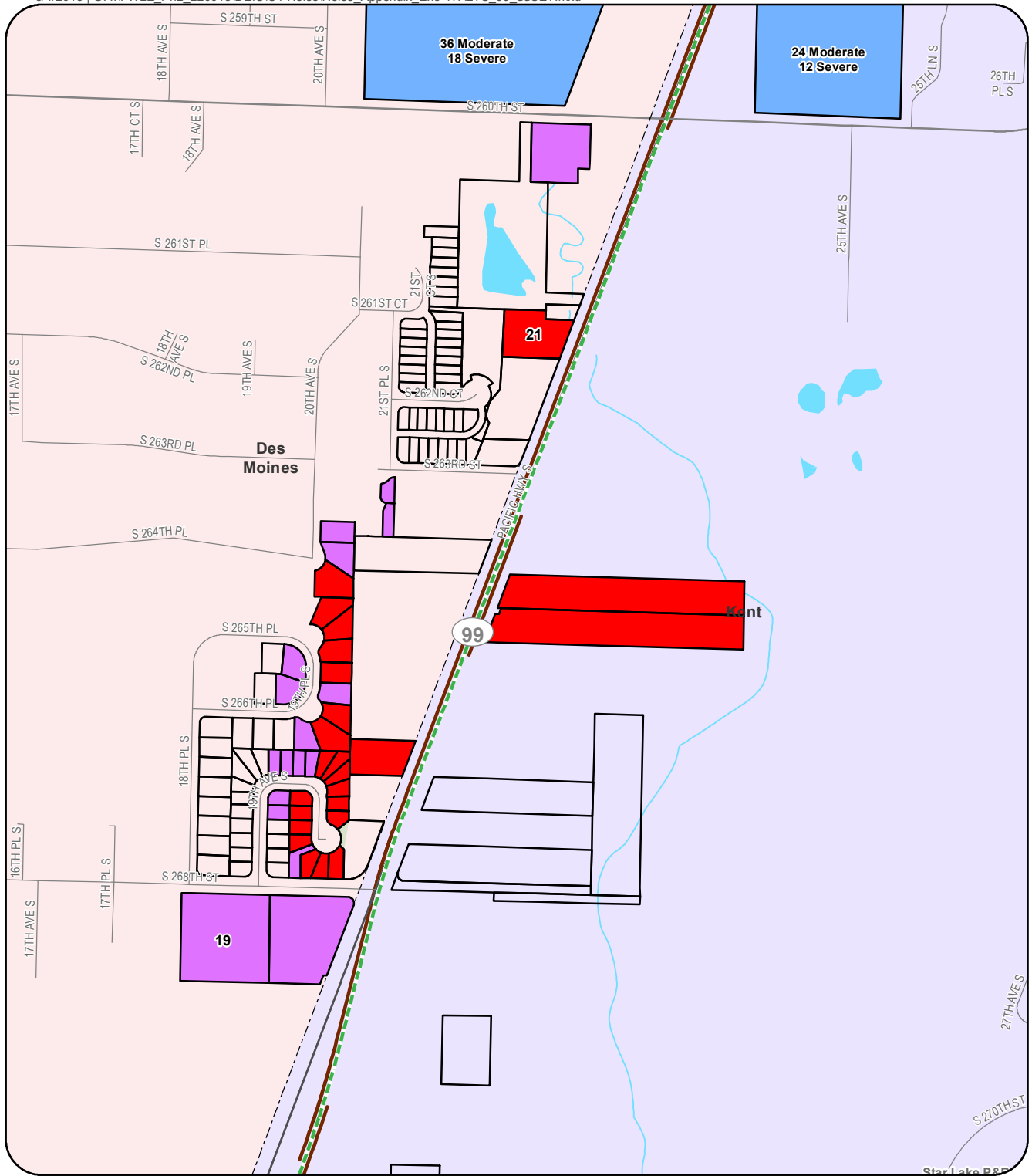
Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Sound Walls

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

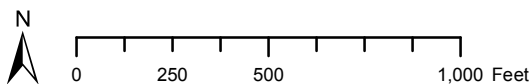
--- Residual Noise Impact Requiring Sound Insulation

--- Station

Notes:

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- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



SR 99 Alternative

- Elevated
 Station
 Crossover Point
 Street
 Stream
 Waterbody
 Park / Open Space
 Moderate
 Severe
 Both Moderate and Severe
 Residual Noise Impact Requiring Sound Insulation
 Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

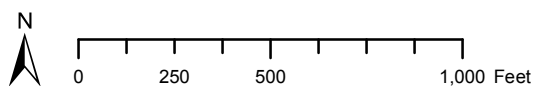
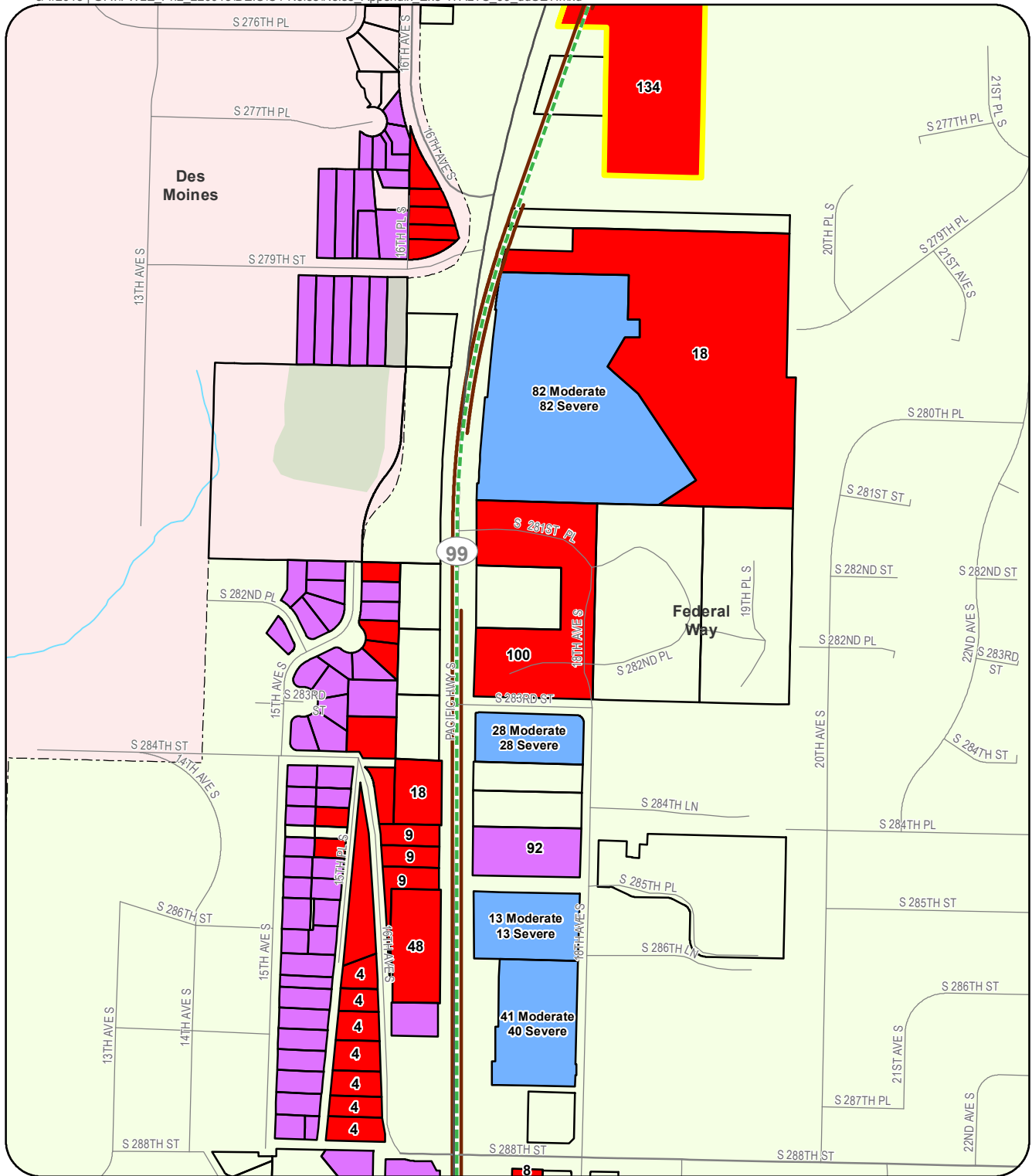


EXHIBIT C-12

Noise Impacts

SR 99 Alternative

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

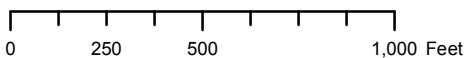
Sound Walls

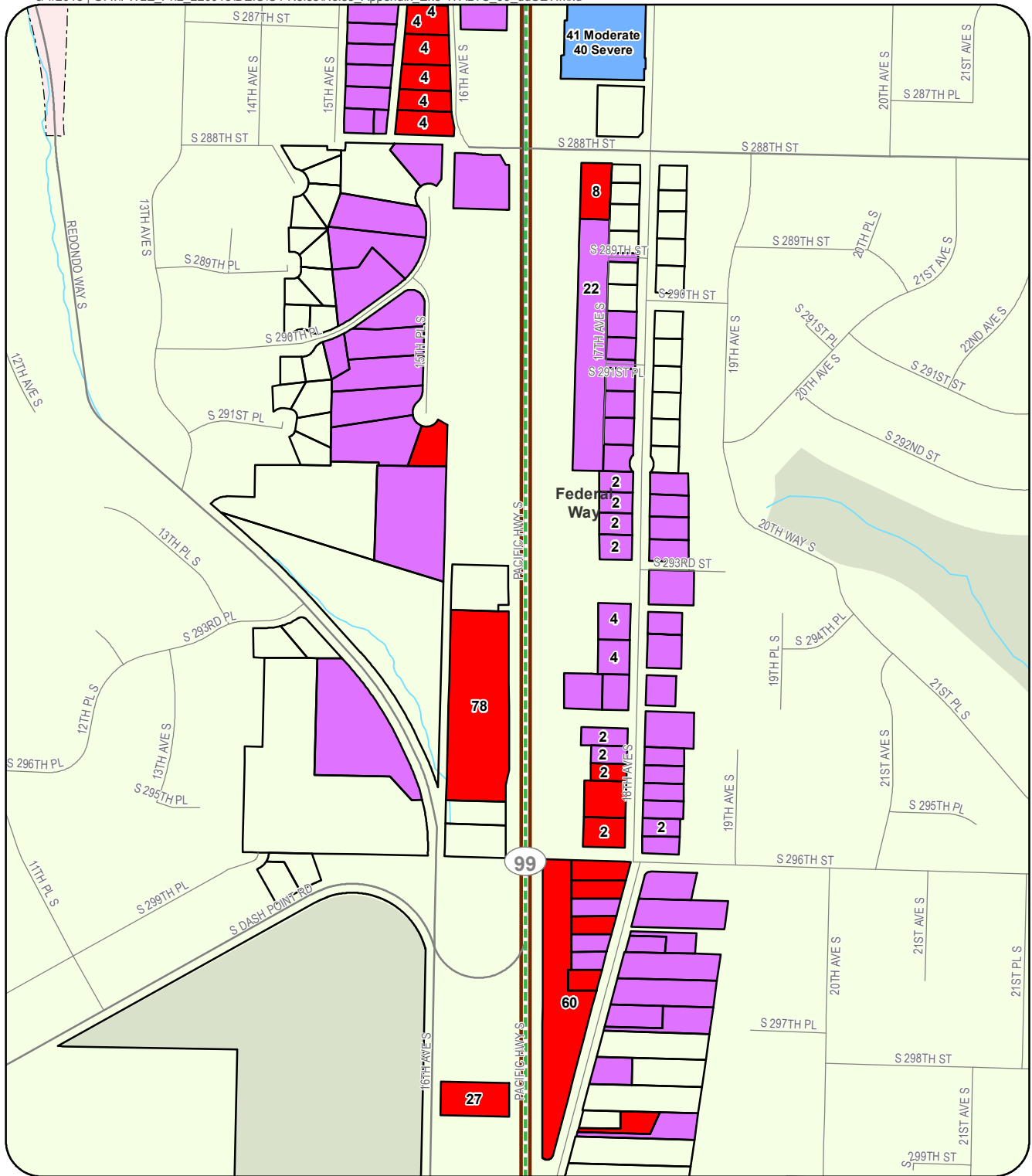
Station

Notes:

- 1) Noise impact is 1 unit per parcel unless otherwise noted.
- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

Station

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

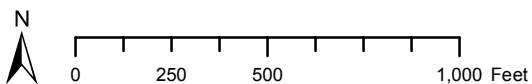
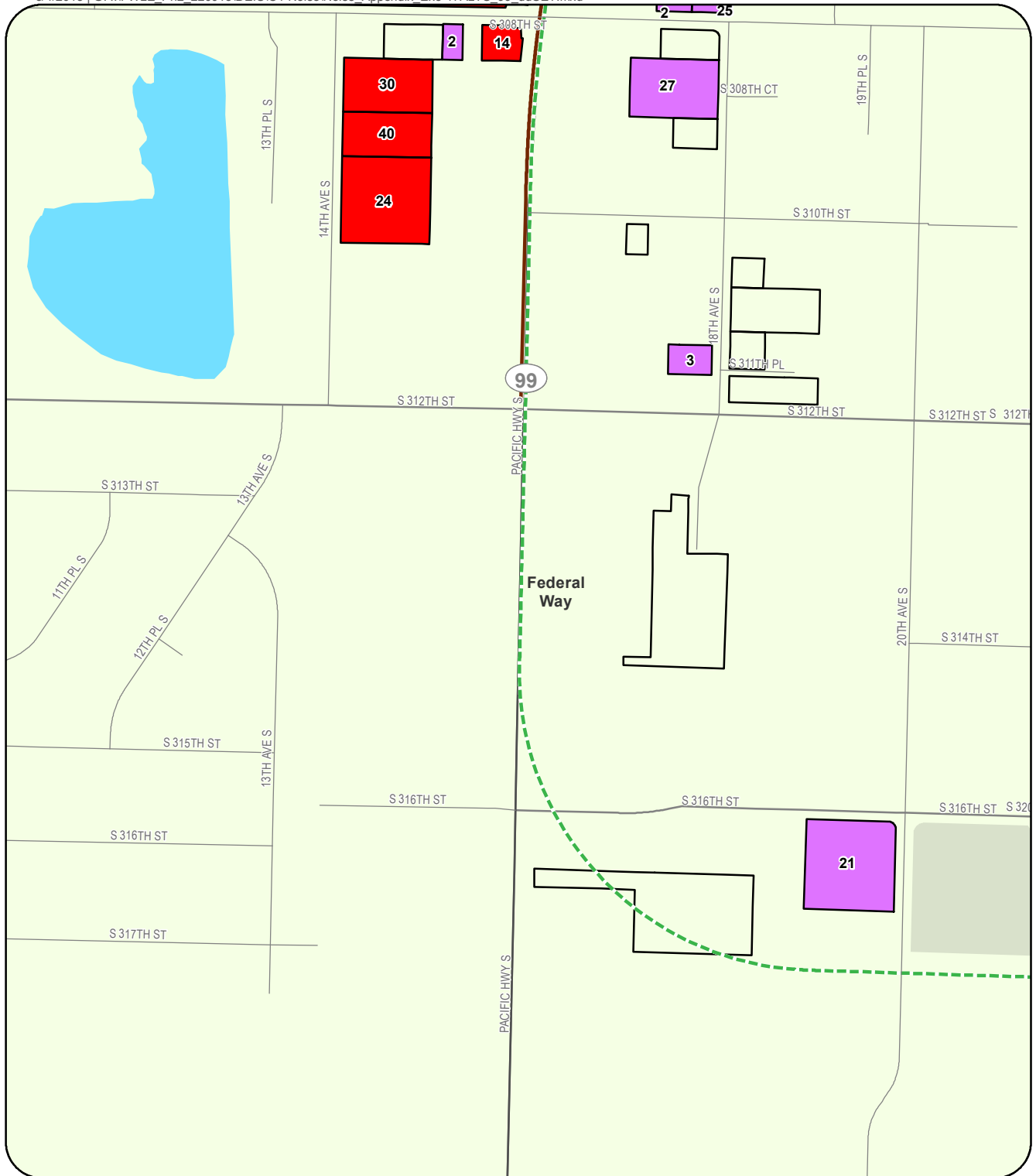


EXHIBIT C-15
Noise Impacts
SR 99 Alternative
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Station

Elevated

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

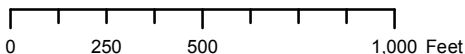
Residual Noise Impact Requiring Sound Insulation

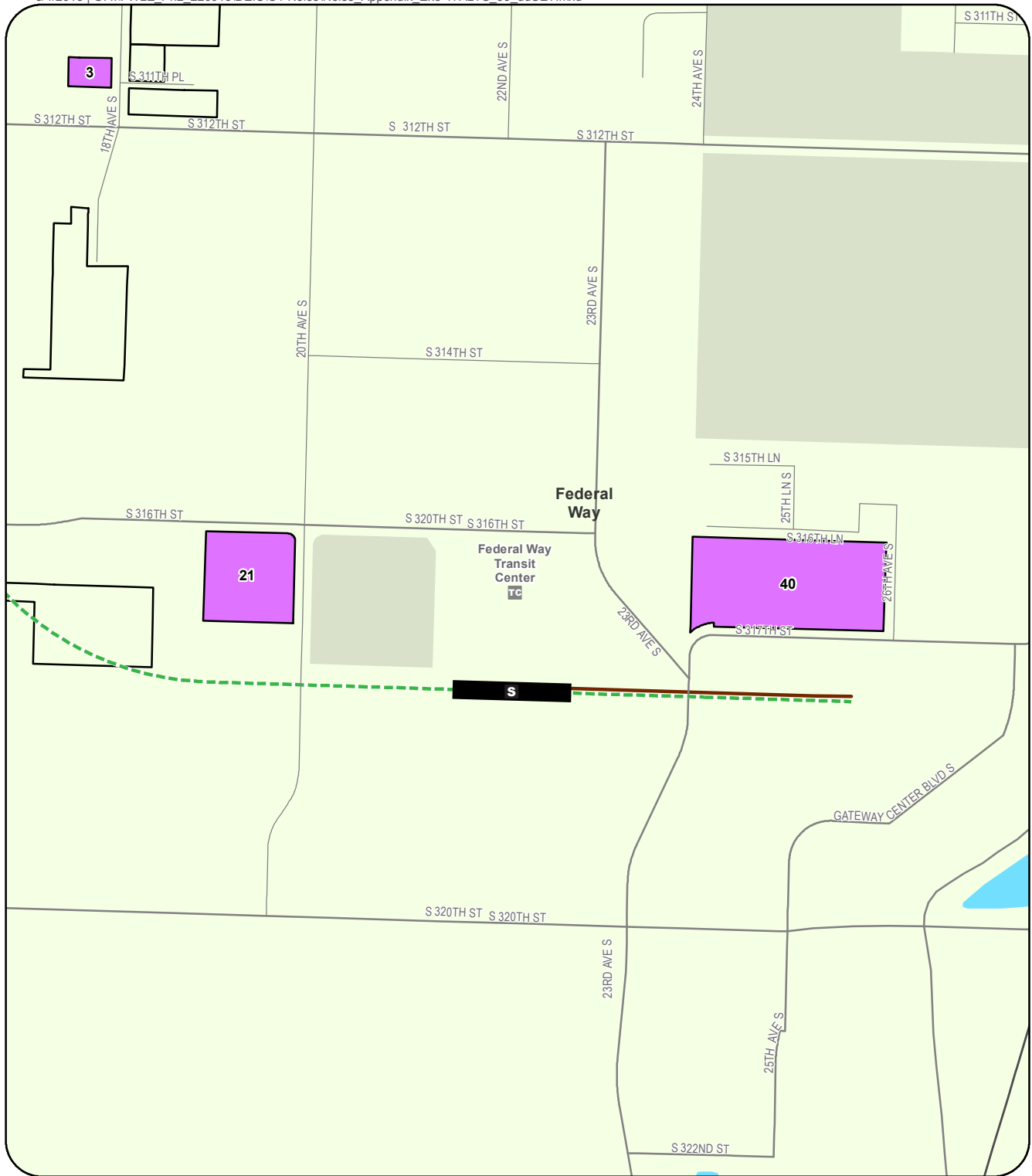
Sound Walls

Notes:

- 1) Noise impact is 1 unit per parcel unless otherwise noted.
- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





SR 99 Alternative

--- Elevated

S Station

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

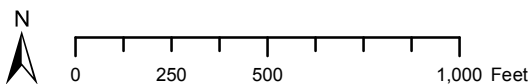
Residual Noise Impact Requiring Sound Insulation

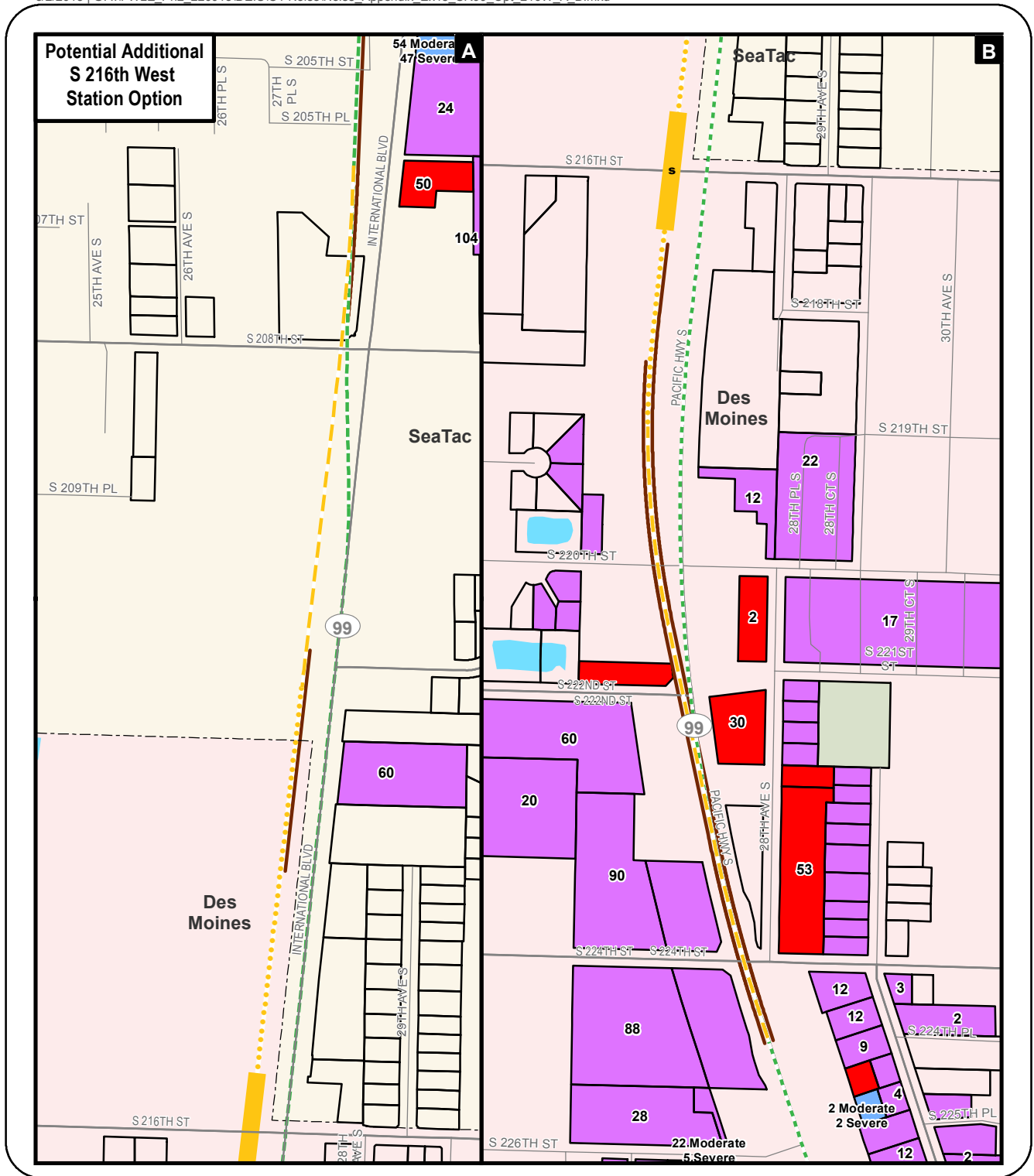
Sound Walls

Notes:

- 1) Noise impact is 1 unit per parcel unless otherwise noted.
- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Sound Walls

--- Station

--- Elevated

--- Trench

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

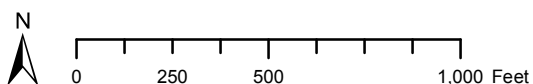
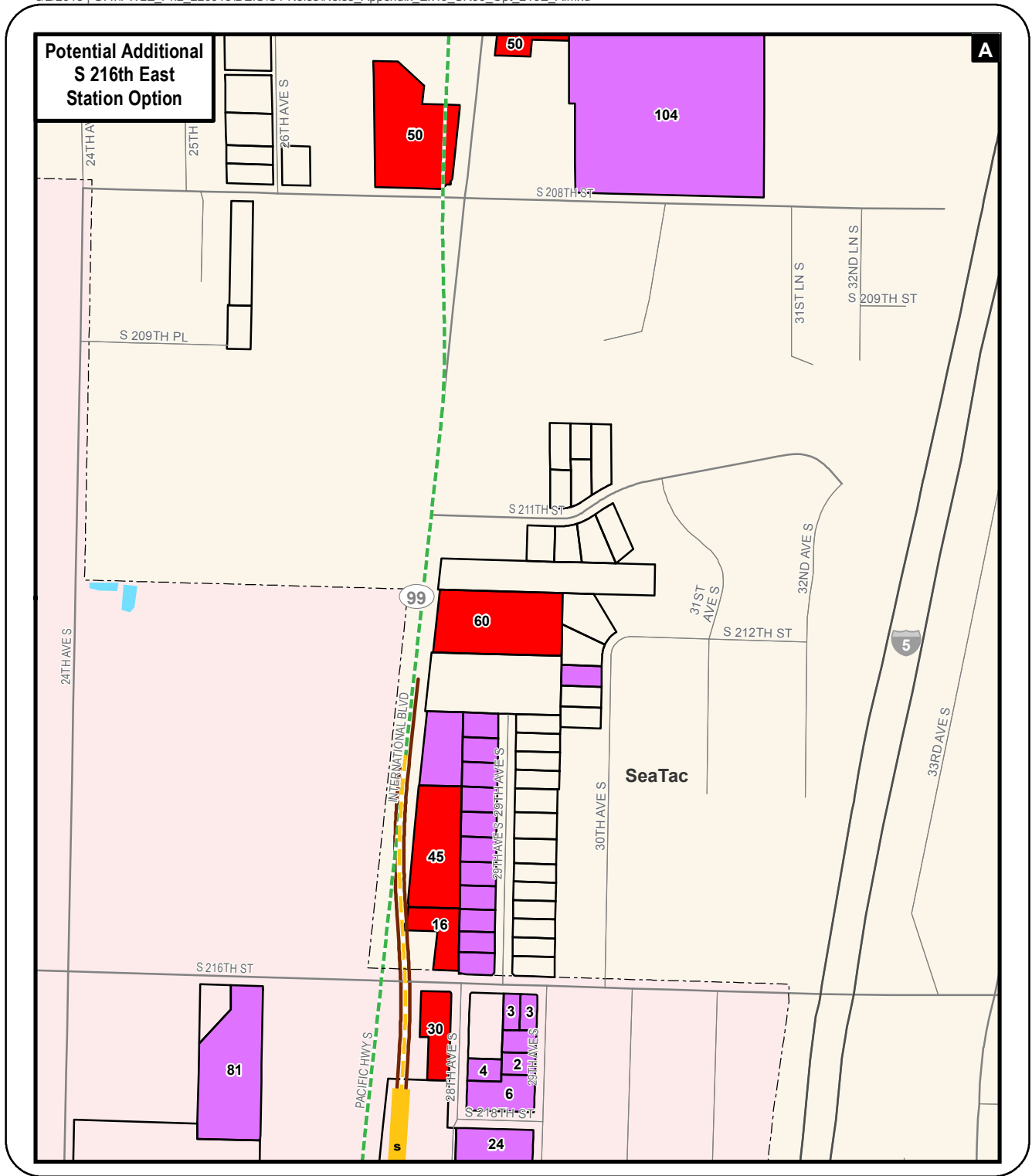


EXHIBIT C-18
Noise Impacts
SR 99 Alternative S 216th West Station Option
Federal Way Link Extension



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

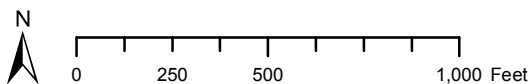
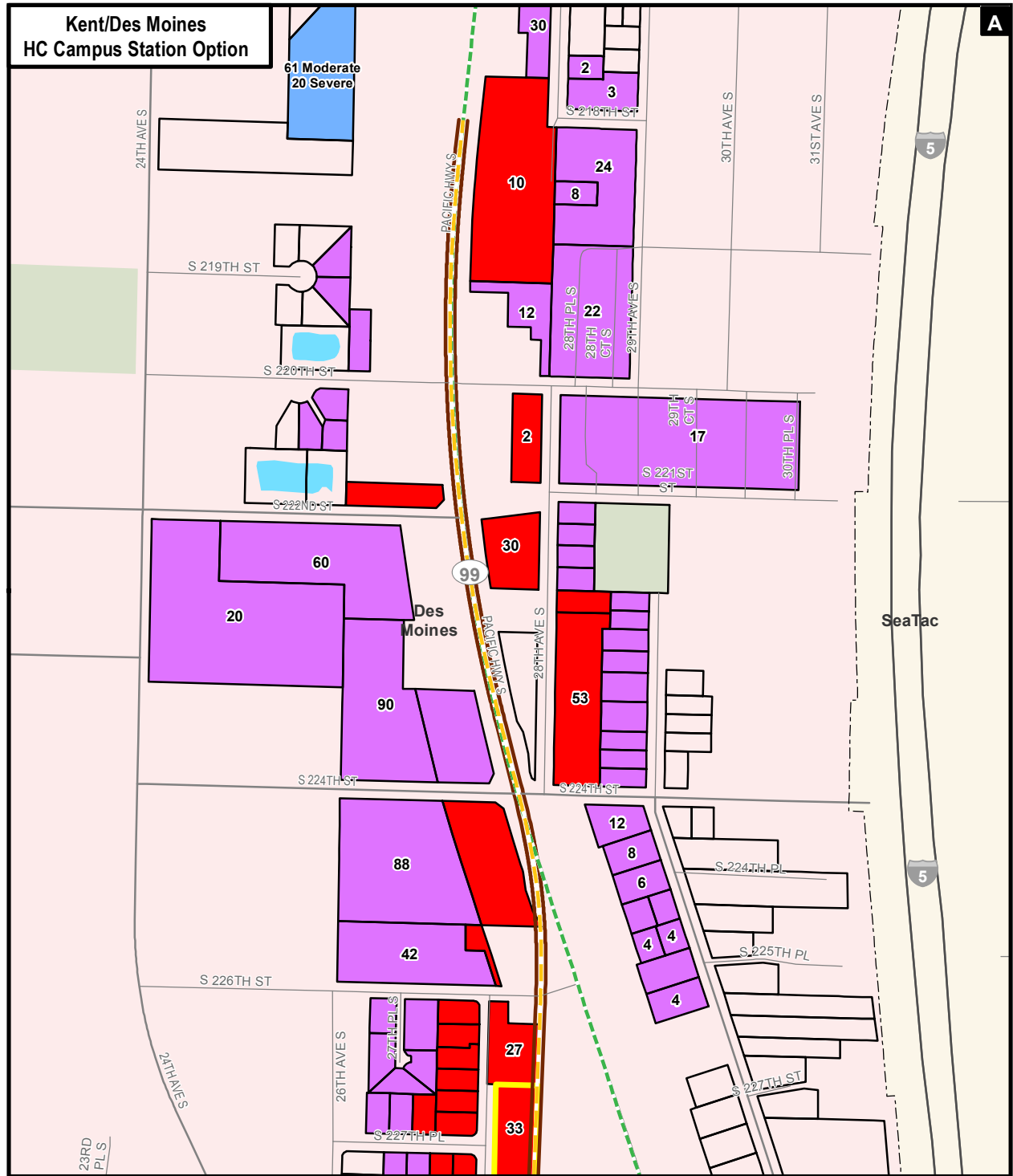


EXHIBIT C-19
Noise Impacts
SR 99 Alternative S 216th East Station Option
Federal Way Link Extension



SR 99 Alternative

--- Elevated

Options

--- Elevated

--- Trench

S Station

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

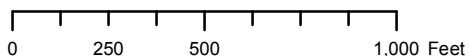
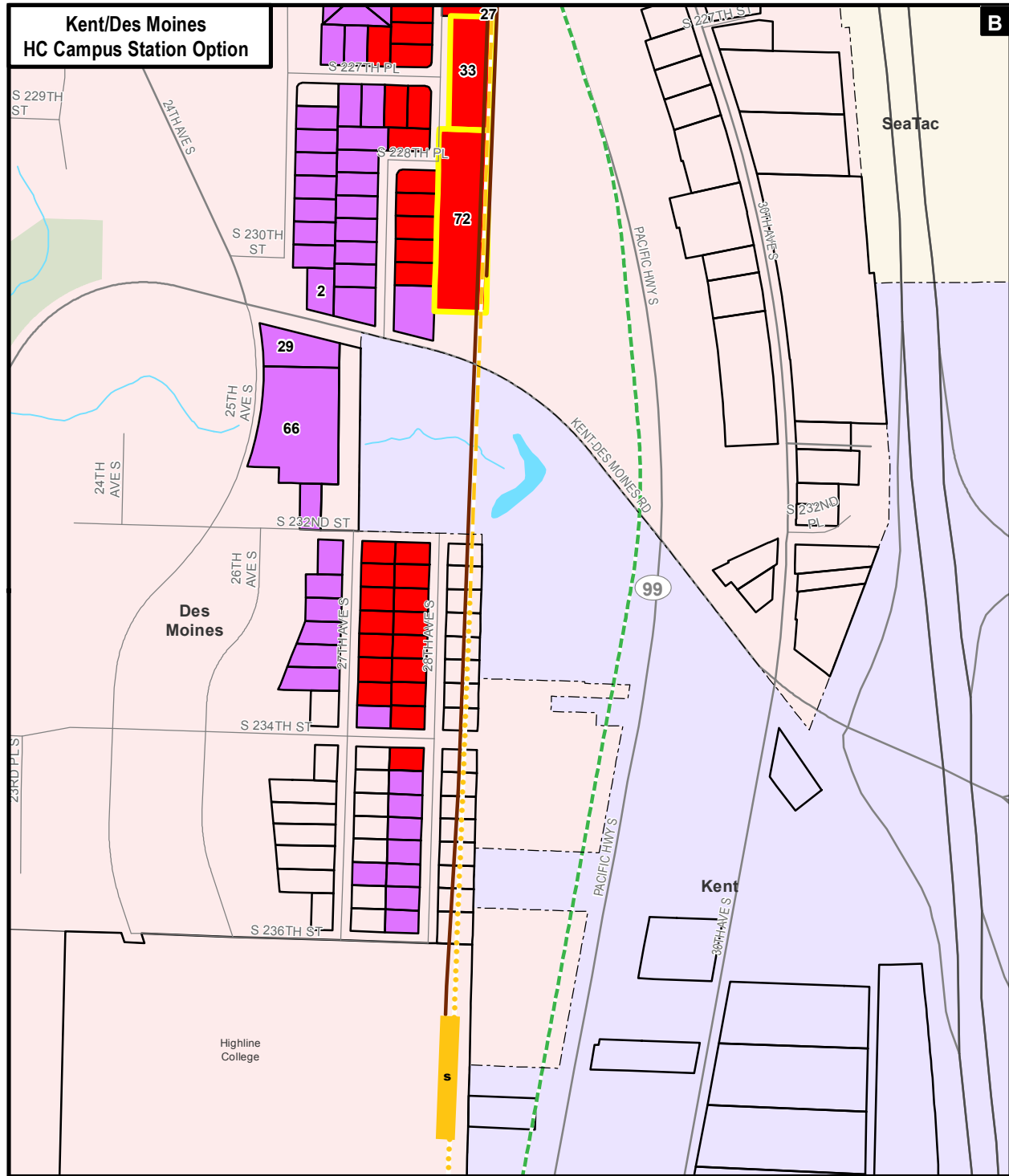


EXHIBIT C-21
Noise Impacts
SR 99 Alternative Kent/Des Moines HC Campus Station Option
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

Station

Options

--- Elevated

--- Trench

--- Sound Walls

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

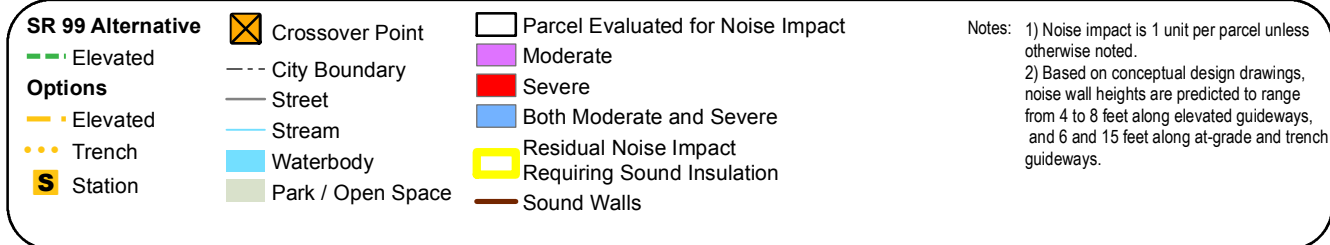
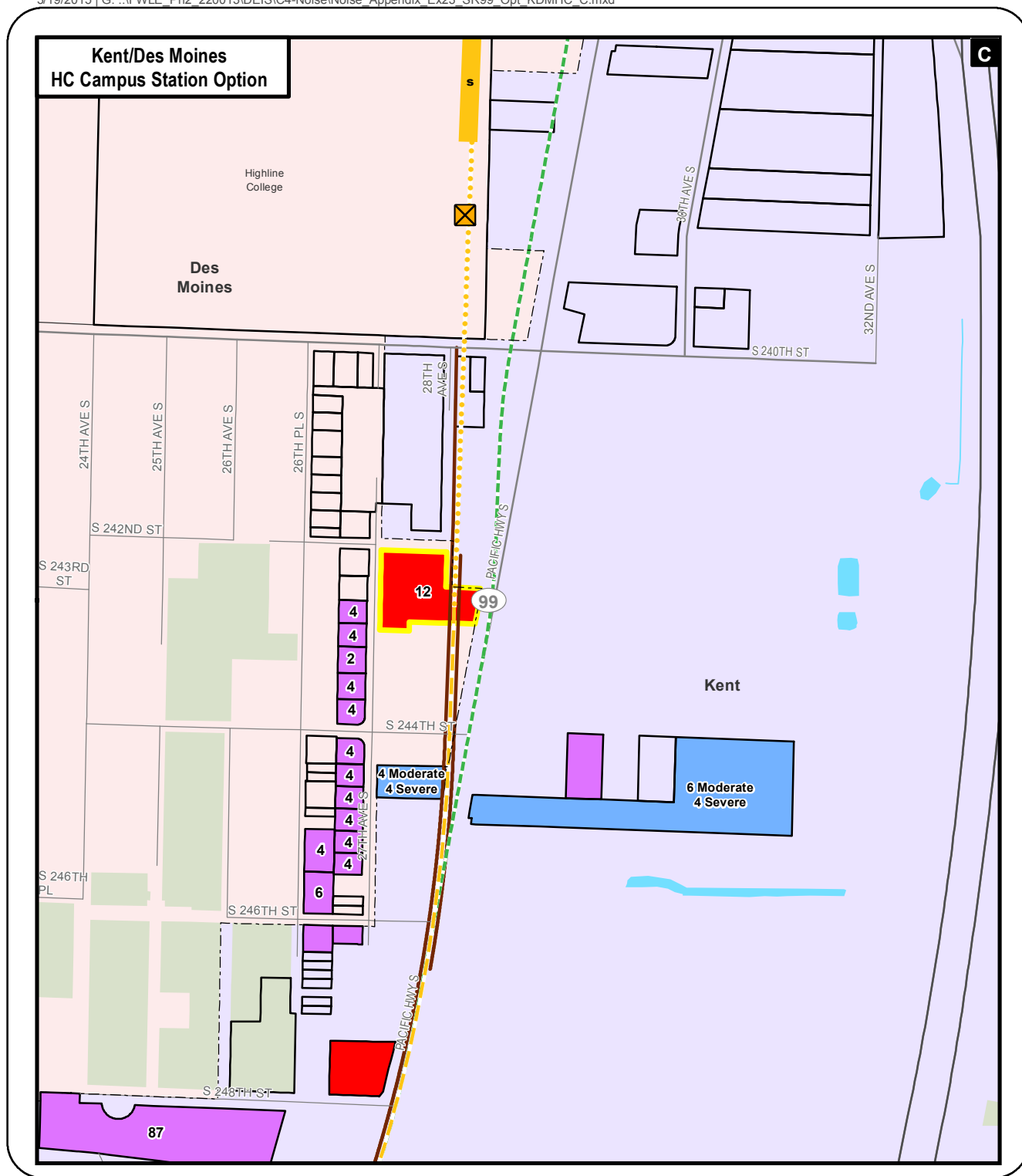
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-22

Noise Impacts

SR 99 Alternative Kent/Des Moines HC Campus Station Option

Federal Way Link Extension



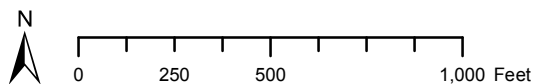
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-23

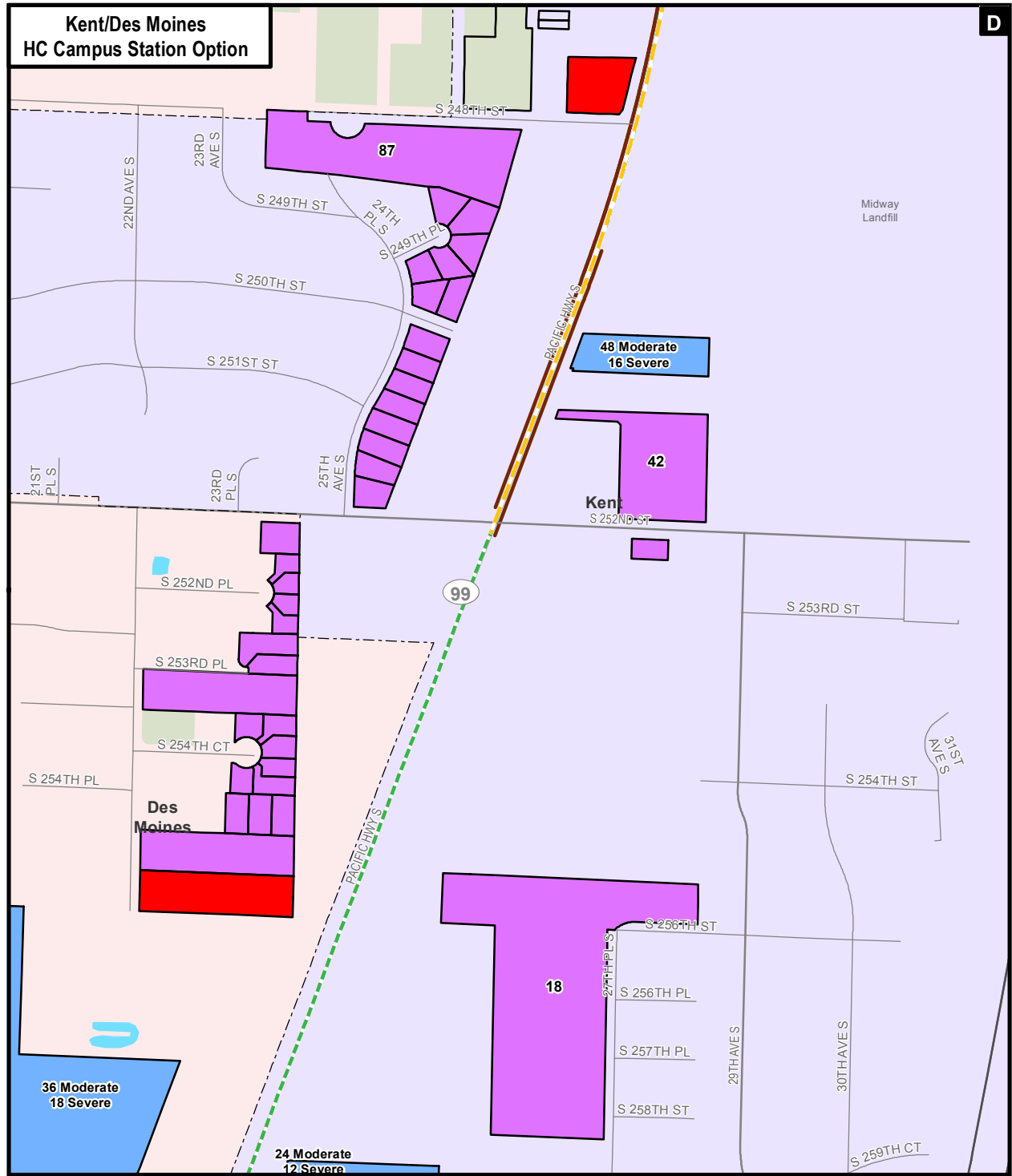
Noise Impacts

SR 99 Alternative Kent/Des Moines HC Campus Station Option

Federal Way Link Extension



0 250 500 1,000 Feet



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

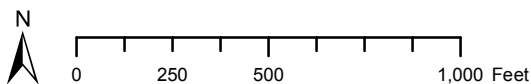
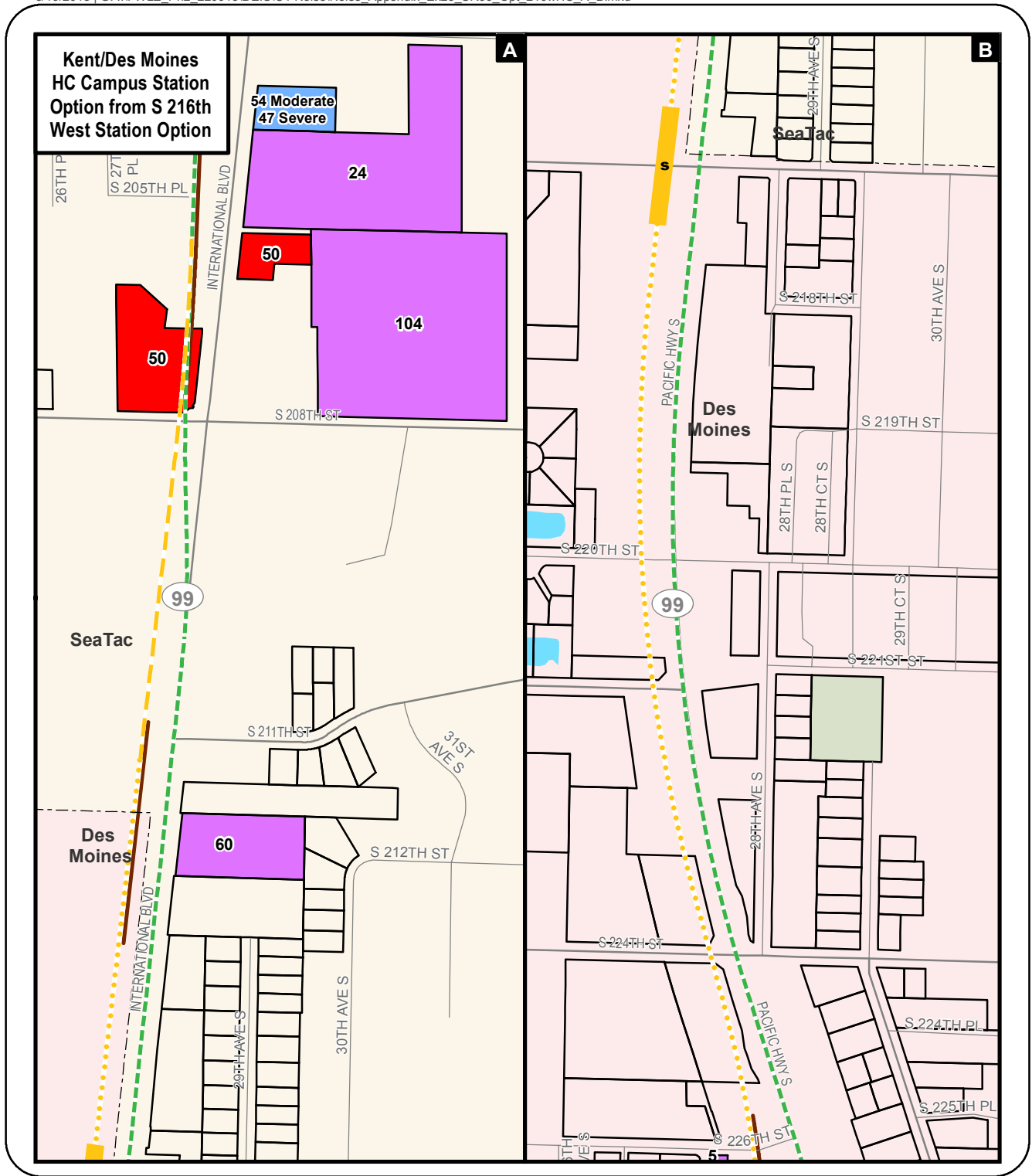


EXHIBIT C-24
Noise Impacts
 SR 99 Alternative Kent/Des Moines HC Campus Station Option
 Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

Station

Options

--- Elevated

--- Trench

--- Sound Walls

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

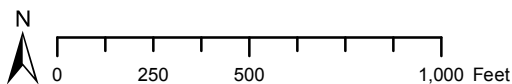
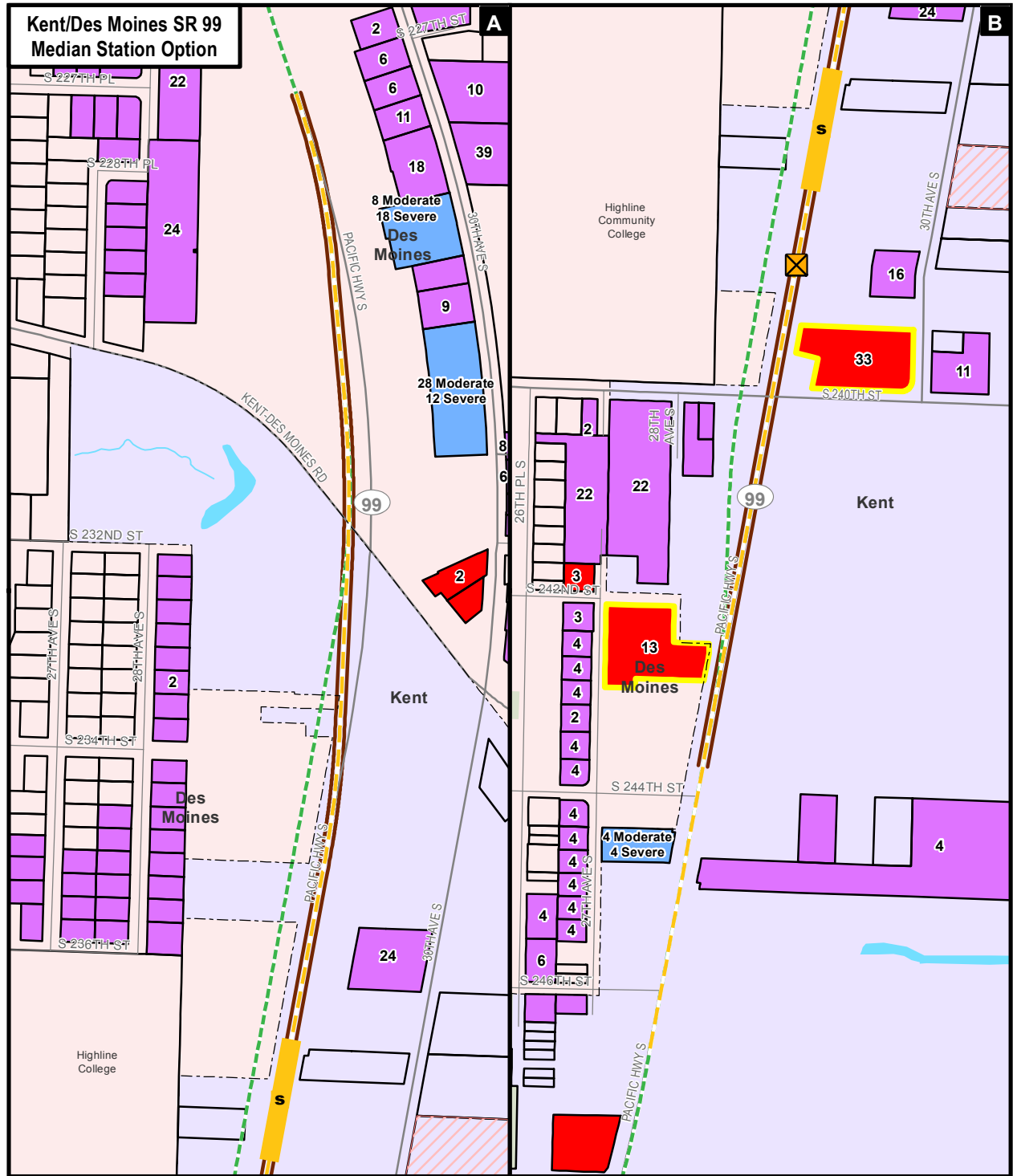


EXHIBIT C-25 Noise Impacts SR 99 Alternative Kent/Des Moines HC Campus Station Option from S 216th West Station Option

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Sound Walls

--- Station

--- Crossover Point

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Park-and-Ride Impact Parcel

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

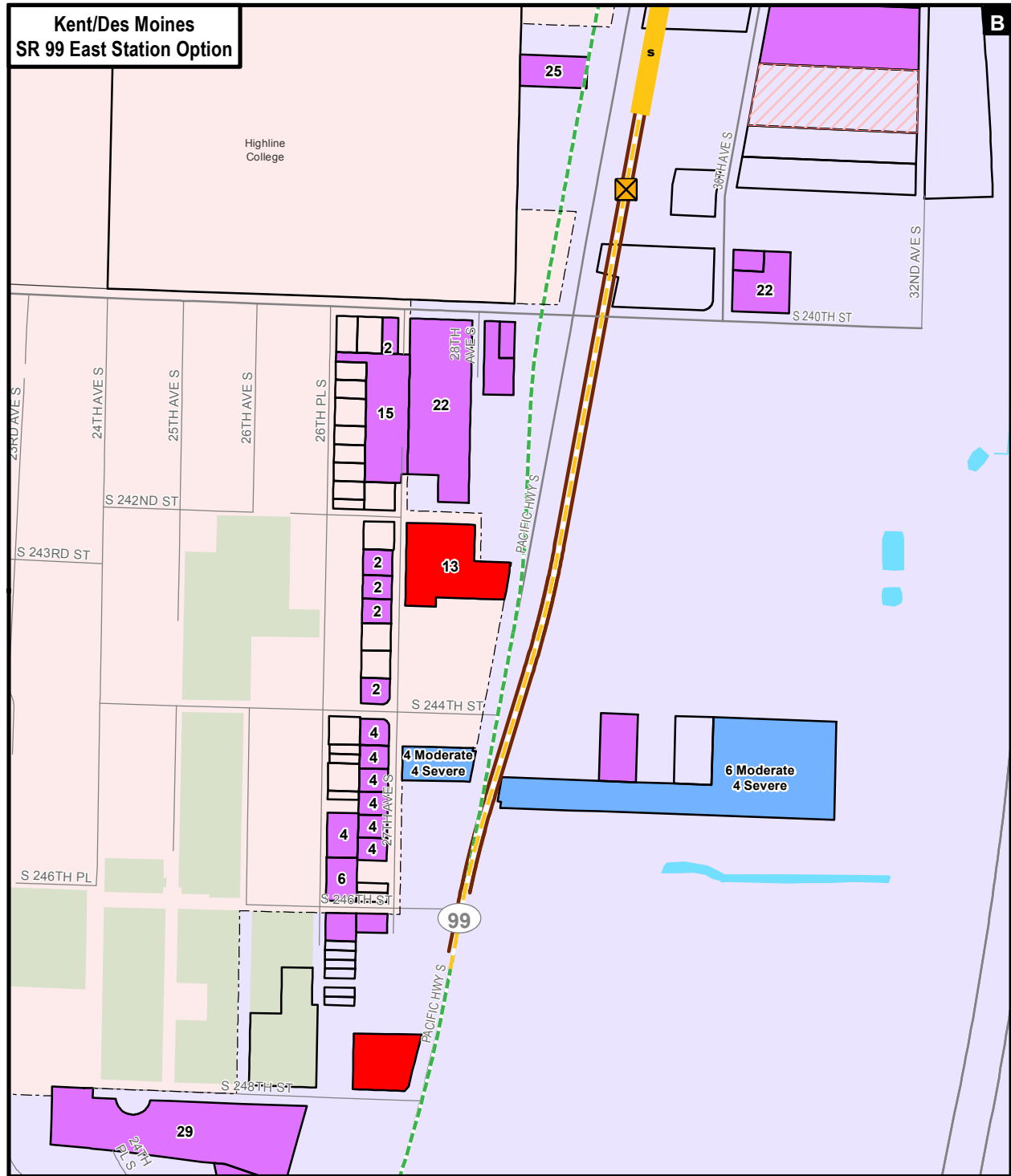
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-27

Noise Impacts

SR 99 Alternative Kent/Des Moines SR 99 Median Station Option

Federal Way Link Extension



SR 99 Alternative

--- Elevated

Options

--- Elevated

S Station

X Crossover Point

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

□ Parcels Evaluated for Potential Impact

□ Moderate

□ Severe

□ Both Moderate and Severe

□ Residual Noise Impact Requiring Sound Insulation

□ Park-and-Ride Impact Parcel

--- Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

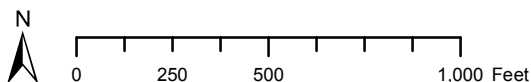
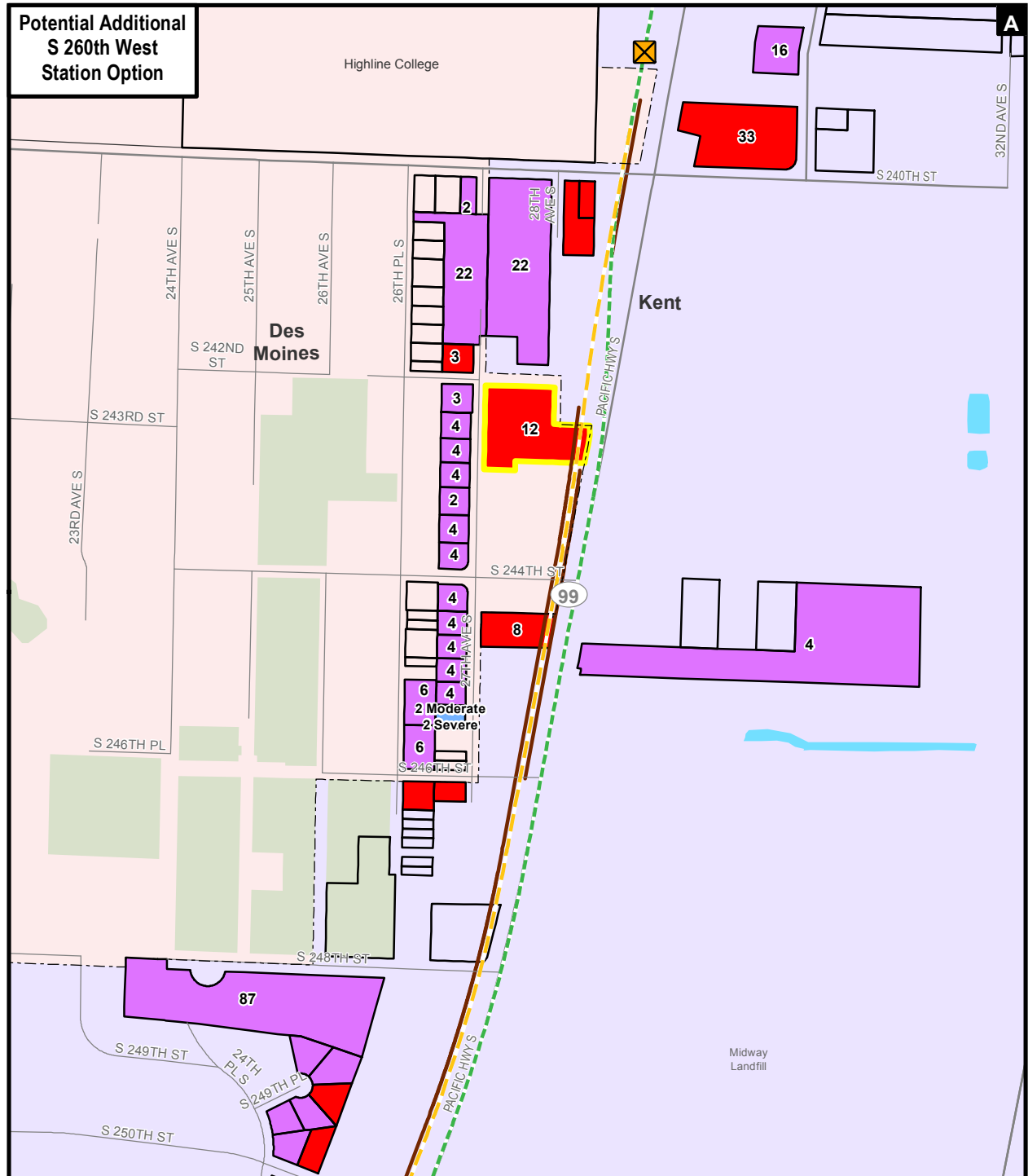


EXHIBIT C-29
Noise Impacts
SR 99 Alternative Kent/Des Moines SR 99 East Station Option
Federal Way Link Extension



SR 99 Alternative

- City Boundary
- Street
- Stream
- Waterbody
- Park / Open Space
- Options
- Elevated
- Station
- Crossover Point

Parcel Evaluated for Noise Impact

- Moderate
- Severe
- Both Moderate and Severe
- Residual Noise Impact Requiring Sound Insulation
- Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

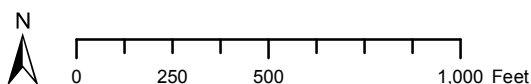
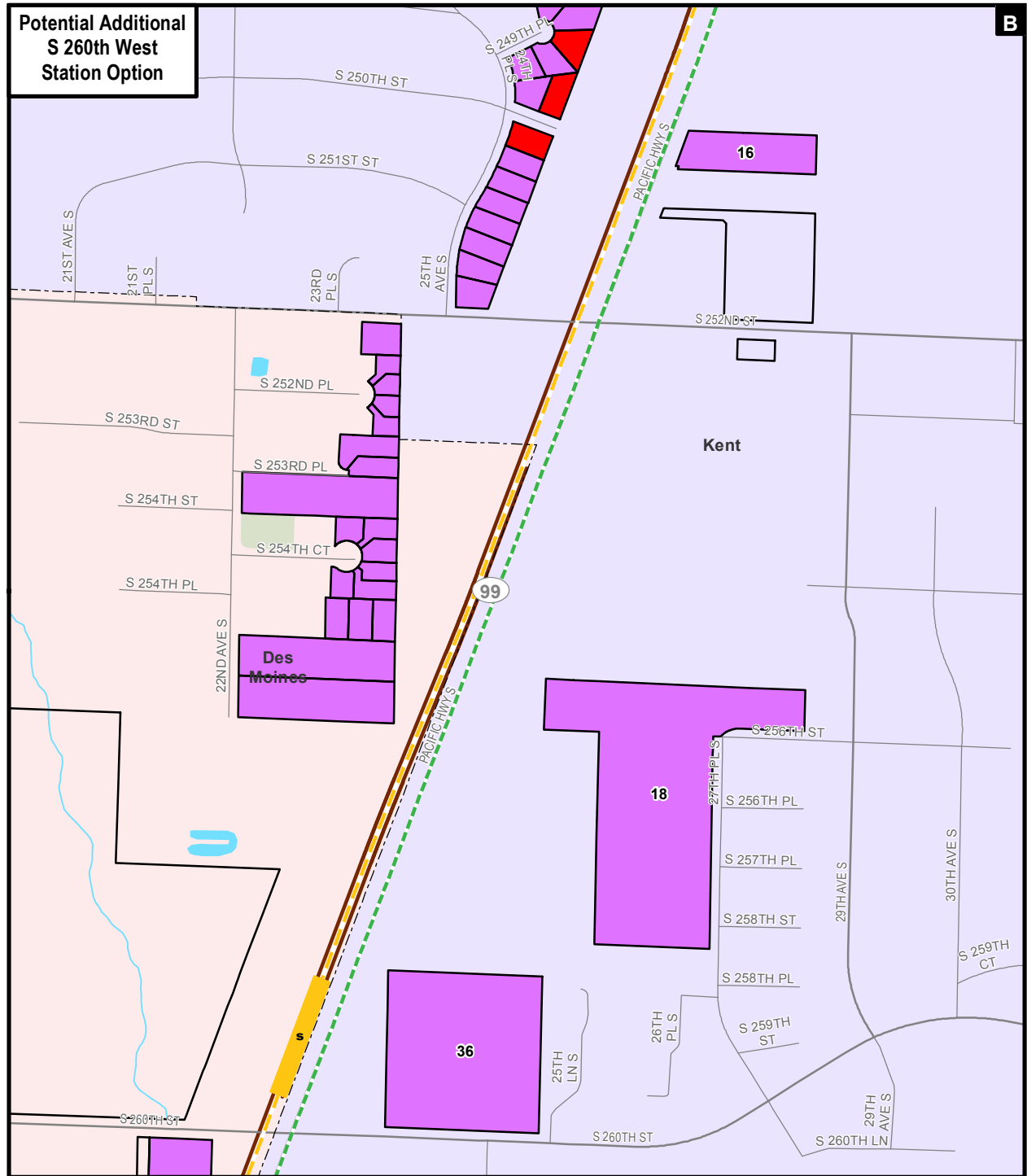


EXHIBIT C-30
Noise Impacts
SR 99 Alternative S 260th West Station Option
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Sound Walls

--- Station

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

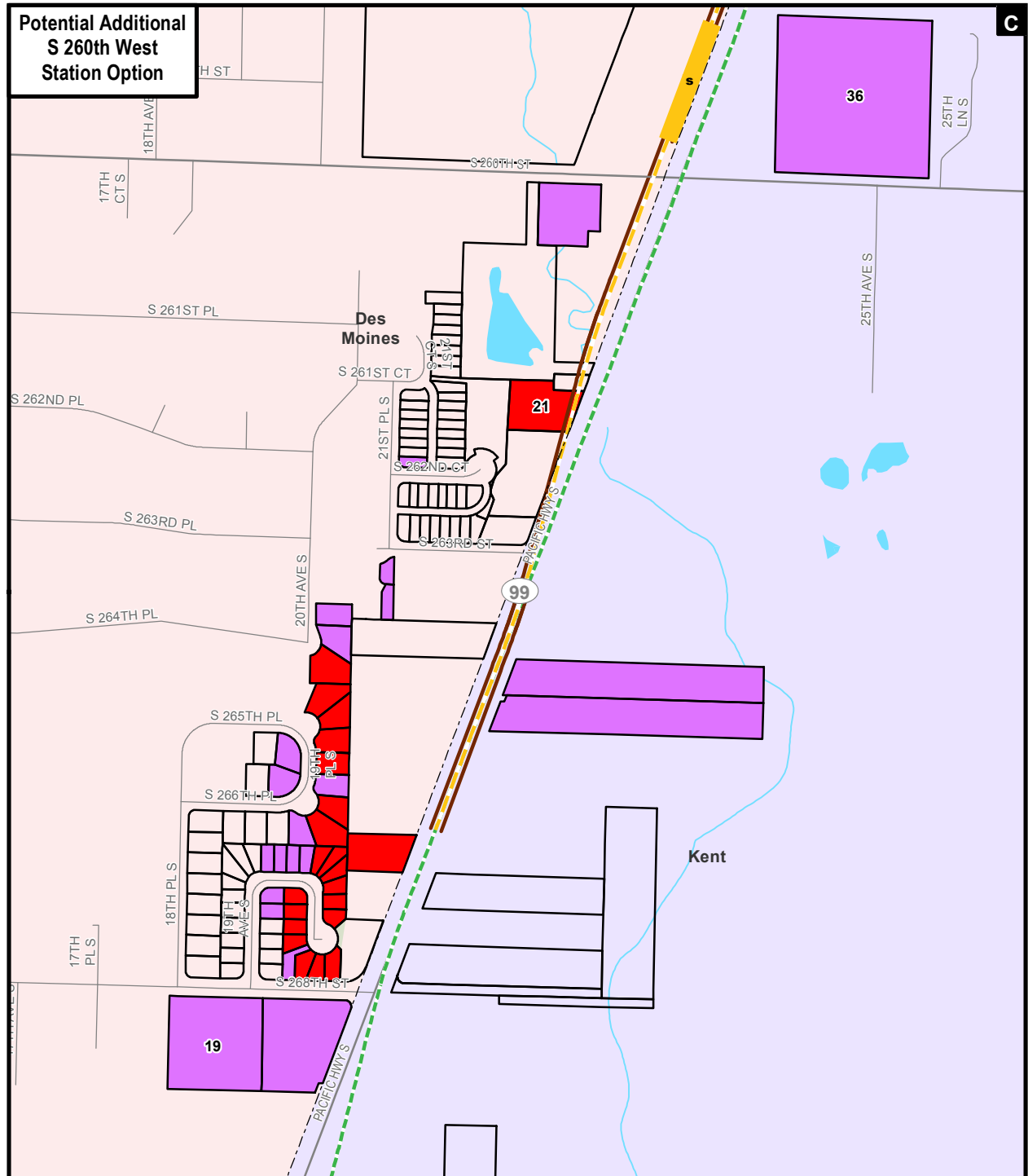
Data Sources: Kent County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-31

Noise Impacts

SR 99 Alternative S 260th West Station Option

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Sound Walls

--- Station

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

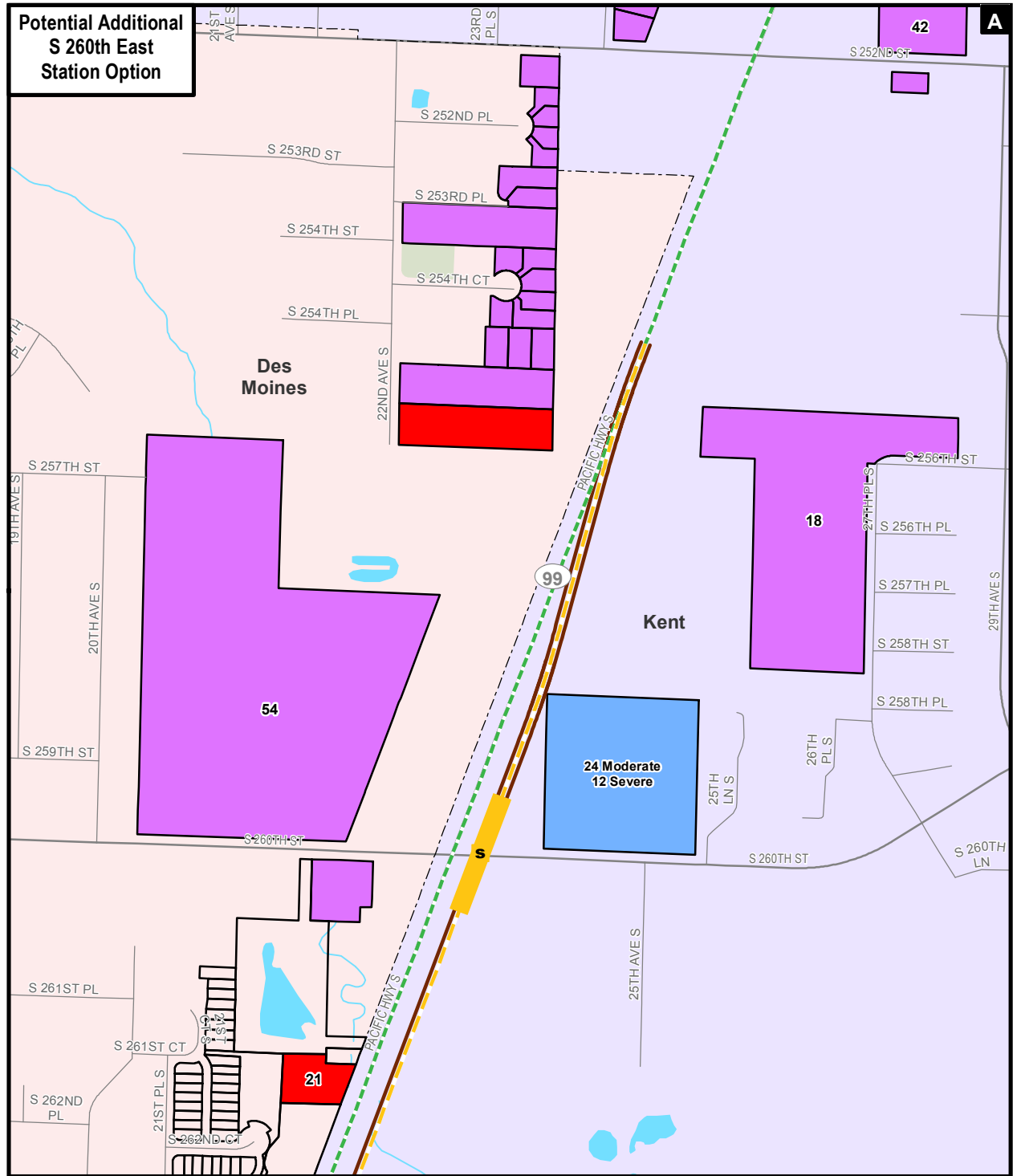
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-32

Noise Impacts

SR 99 Alternative S 260th West Station Option

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Sound Walls

--- Station

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

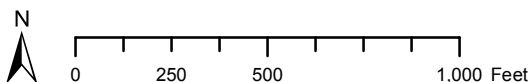
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

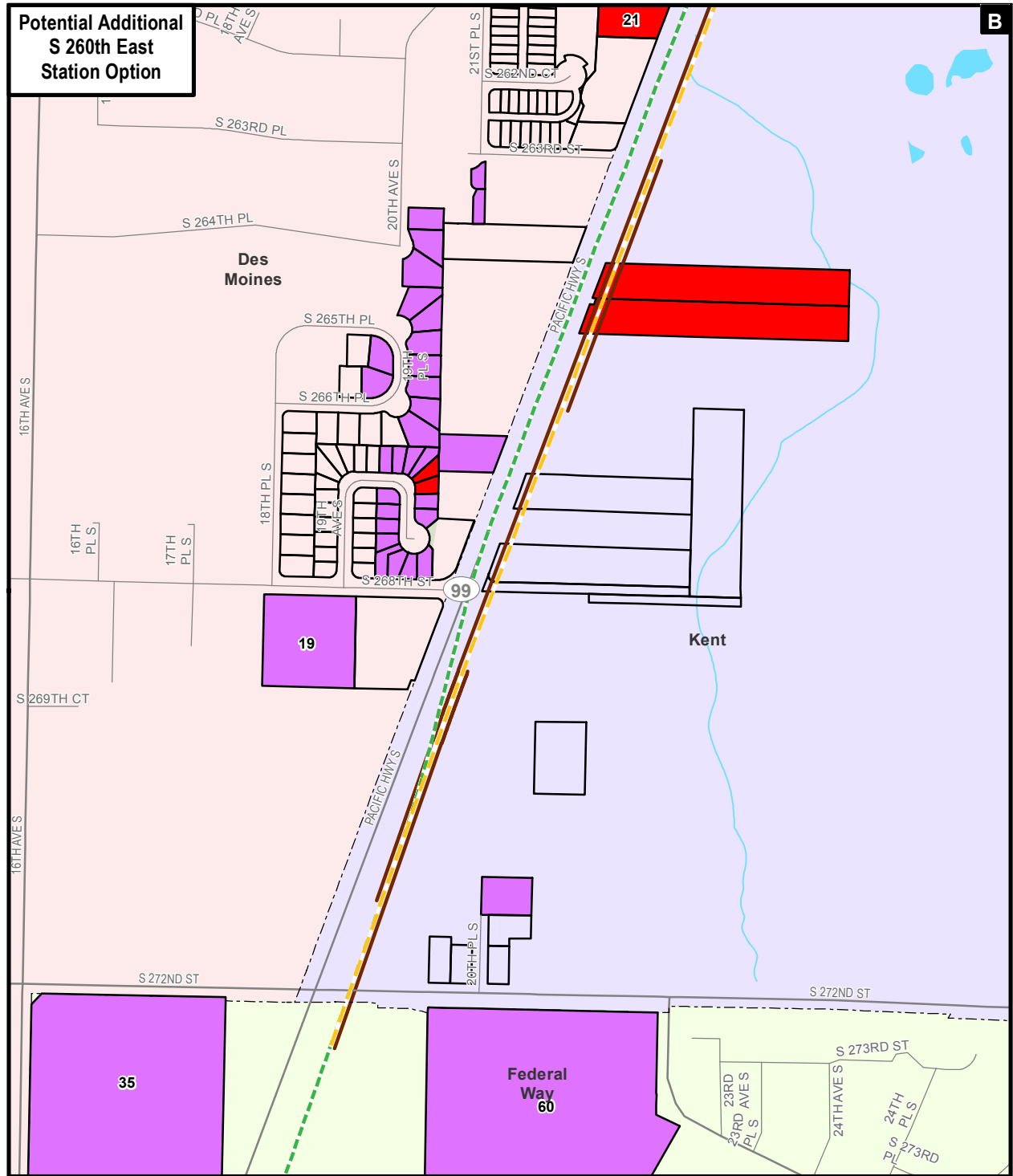
EXHIBIT C-33

Noise Impacts

SR 99 Alternative S 260th East Station Option

Federal Way Link Extension





SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Parcel Evaluated for Noise Impact

--- Moderate

--- Severe

--- Both Moderate and Severe

--- Residual Noise Impact Requiring Sound Insulation

--- Sound Walls

--- Station

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
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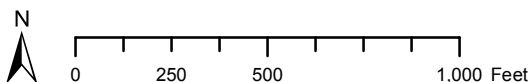
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-34

Noise Impacts

SR 99 Alternative S 260th East Station Option

Federal Way Link Extension



SR 99 Alternative

■ ■ | Elevated

Options

■ Elevated

— At-Grade

- ● ● Trench

S Station

— - - City Boundary

— Street

— Stream

 Waterbody

 Park / Open Space

☐ Parcel Evaluated for Noise Impact

 Moderate

 Severe

☐ Both Moderate and Severe

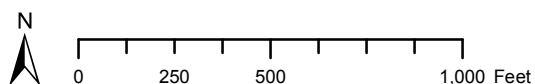
 Residual Noise Impact Requiring Sound Insulation

— Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.

2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



3). **EXHIBIT C-35**
Noise Impacts
SR 99 Alternative S 272nd Redondo Trench Station Option
Federal Way Link Extension

SR 99 Alternative

■ ■ Elevated

Options

■ Elevated

— At-Grade

- ● ● Trench

S Station


 Crossover

— - - City Boundary

— Street

— Stream

 Waterbody

 Park / Open Space

 Parcel Evaluated for Noise Impact

 Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

— Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.

2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

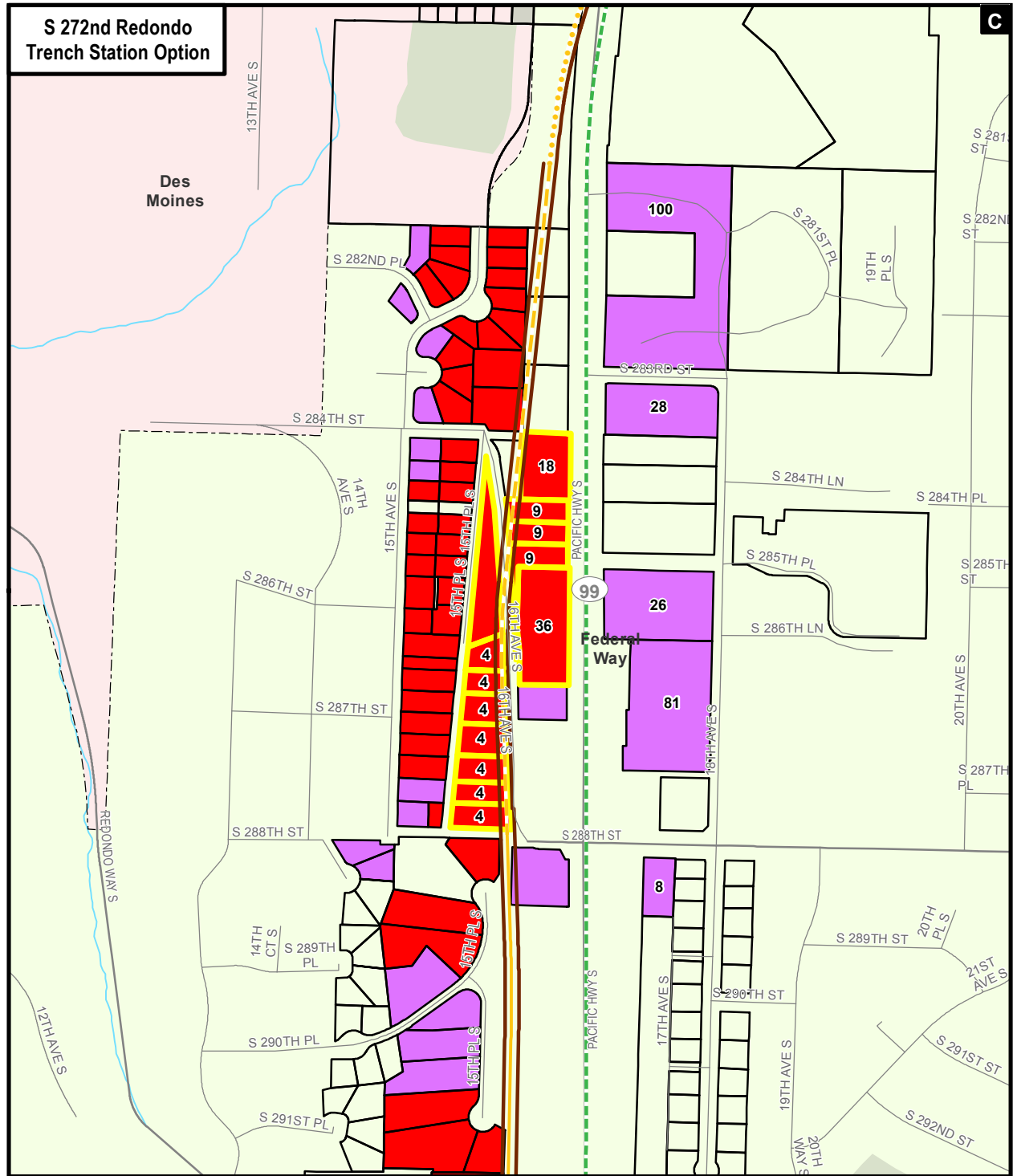


EXHIBIT C-36

EXHIBIT C-33

SR 99 Alternative S 272nd Redondo Trench Station Option

Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Elevated

--- At-Grade

--- Trench

--- Station

--- City Boundary

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Elevated

--- At-Grade

--- Trench

--- Station

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

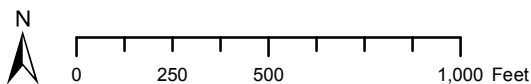
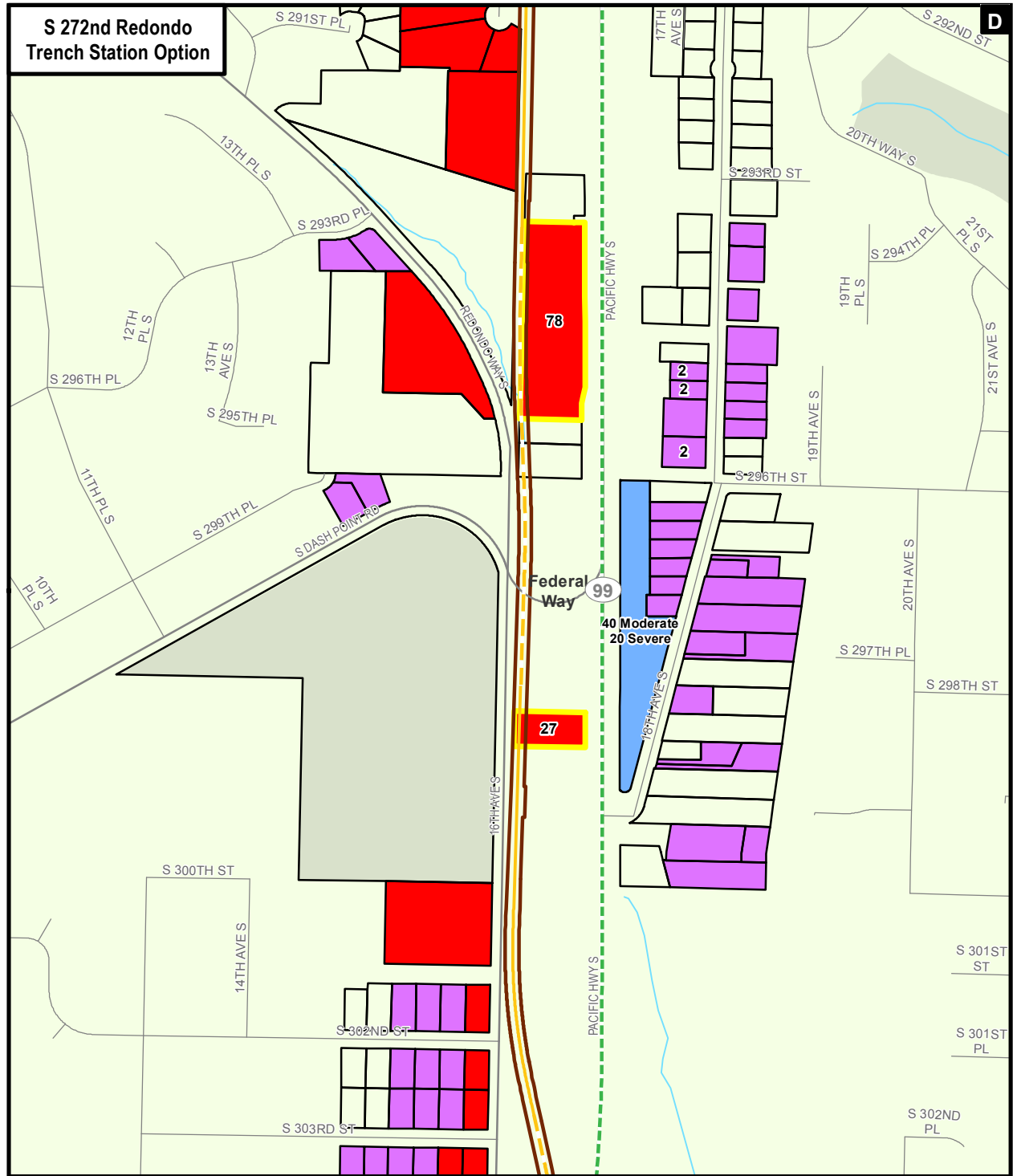


EXHIBIT C-37
Noise Impacts
SR 99 Alternative S 272nd Redondo Trench Station Option
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

Options

--- Street

--- Stream

--- Waterbody

--- Park / Open Space

--- Elevated

--- At-Grade

--- Trench

--- Station

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

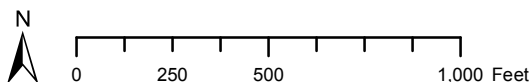
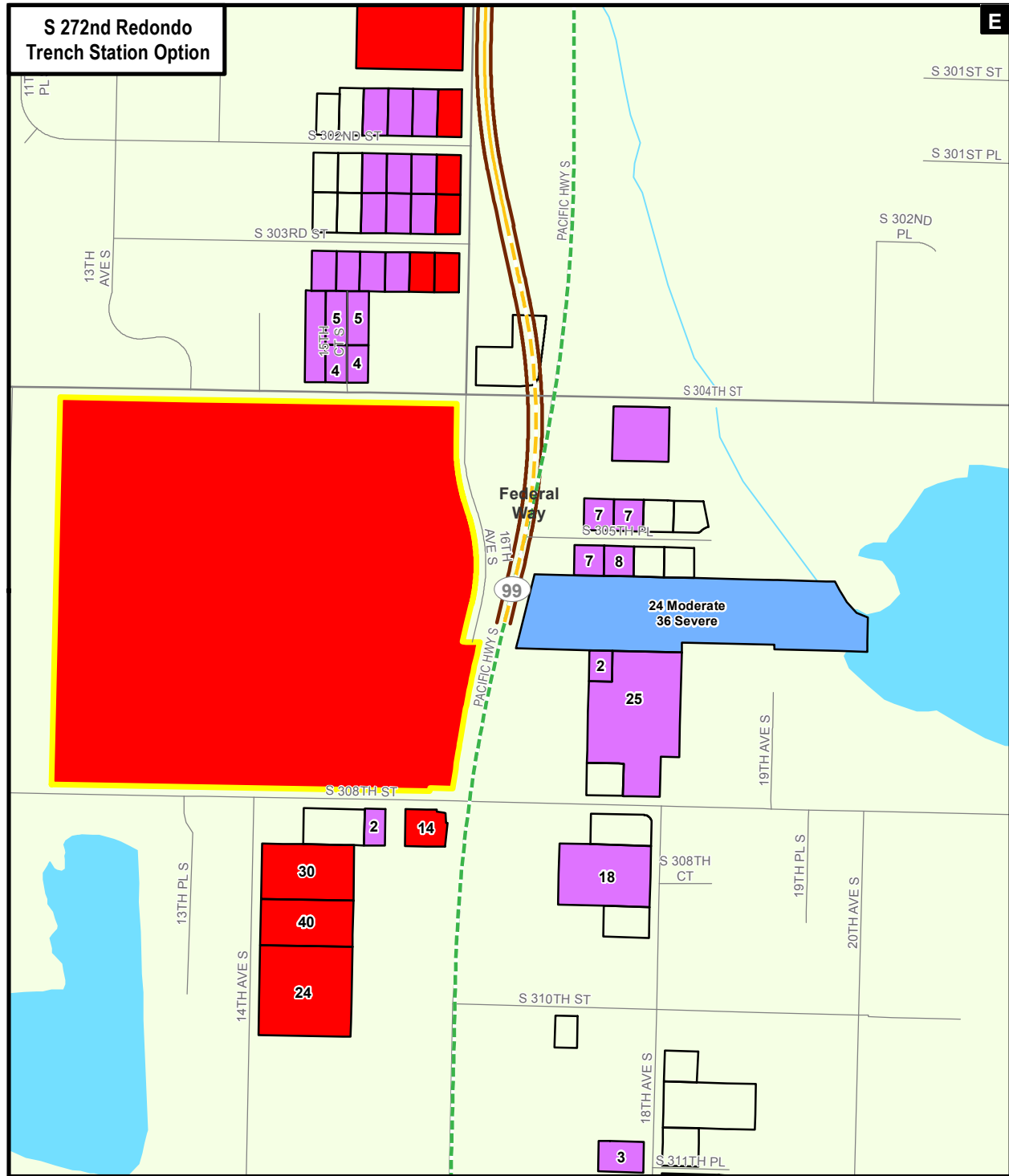


EXHIBIT C-38
Noise Impacts
SR 99 Alternative S 272nd Redondo Trench Station Option
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

Options

--- Elevated

--- At-Grade

--- Trench

S Station

--- City Boundary

--- Street

--- Stream

Waterbody

Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

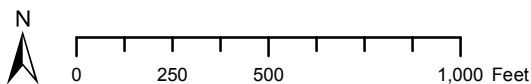
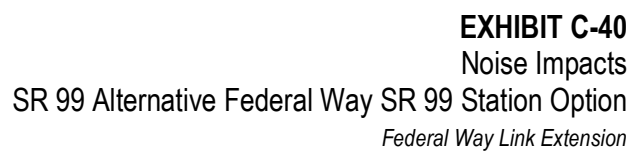


EXHIBIT C-39
Noise Impacts
SR 99 Alternative S 272nd Redondo Trench Station Option
Federal Way Link Extension



- Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Federal Way Link Extension

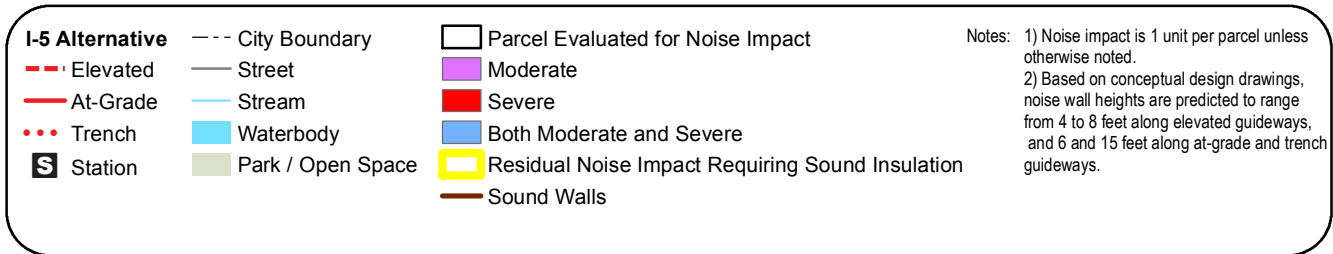
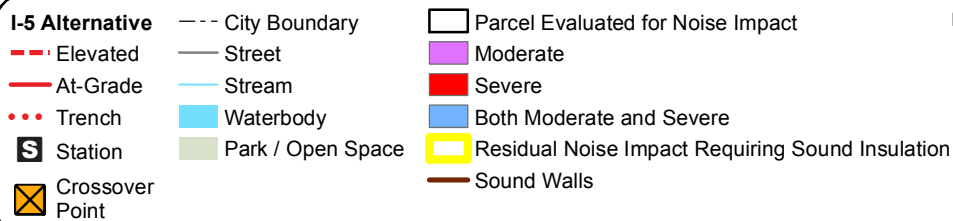
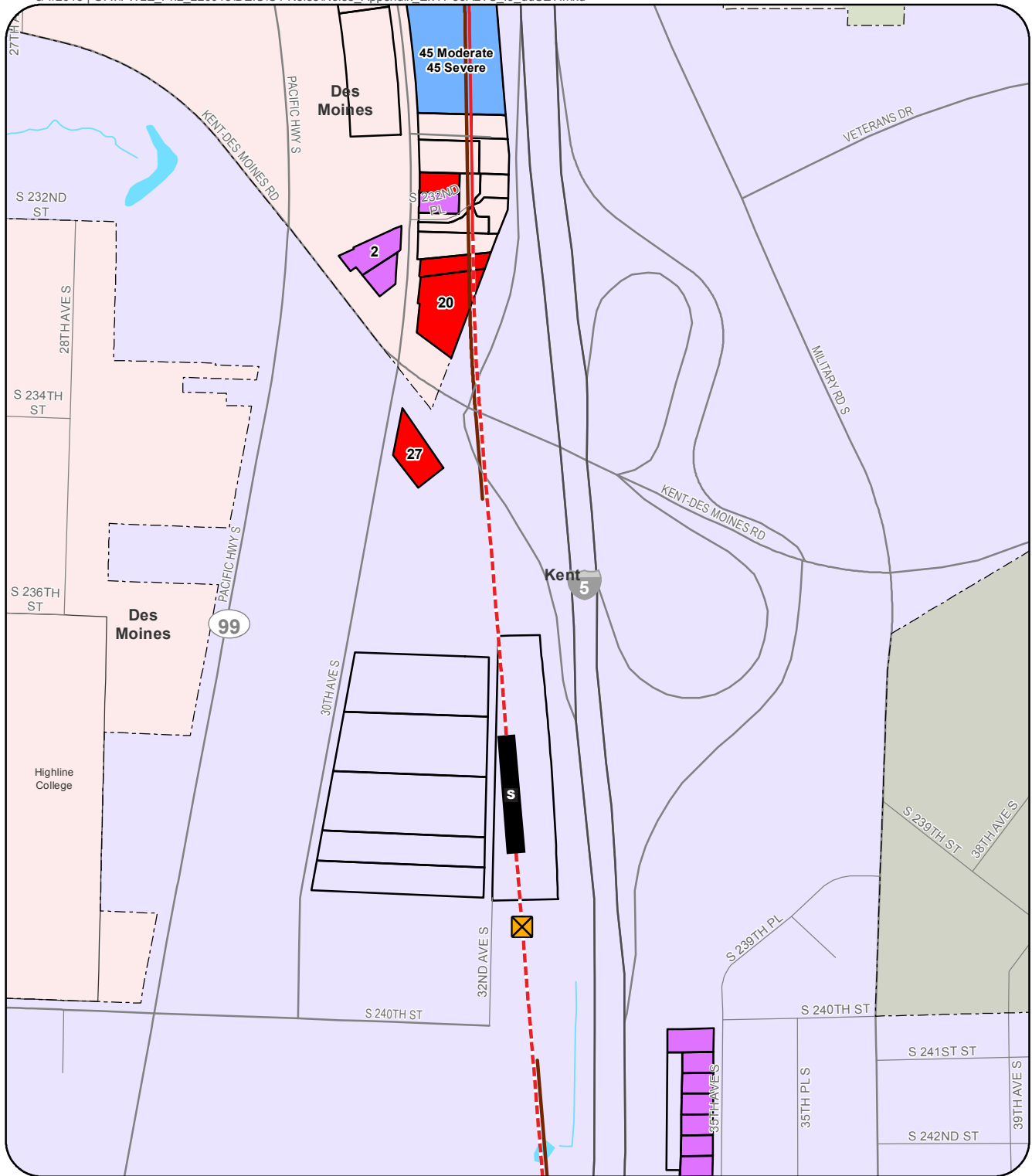


EXHIBIT C-42
Noise Impacts
I-5 Alternative

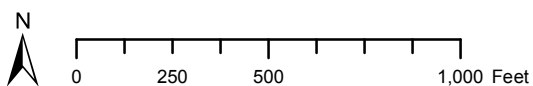
- Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

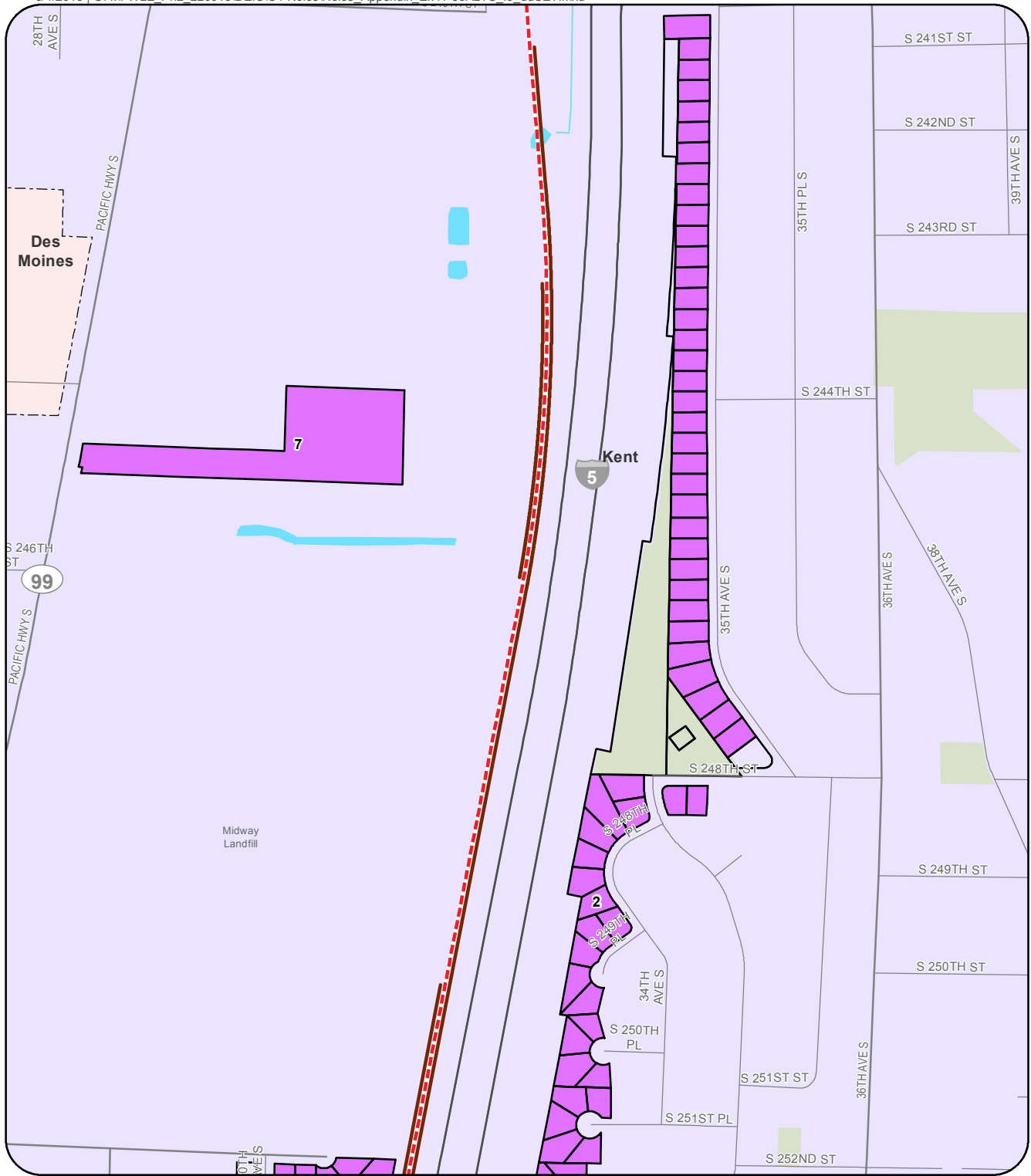
Federal Way Link Extension



Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





- I-5 Alternative**
- City Boundary
 - Street
 - Stream
 - Waterbody
 - Park / Open Space
 - Parcel Evaluated for Noise Impact
 - Moderate
 - Severe
 - Both Moderate and Severe
 - Residual Noise Impact Requiring Sound Insulation
 - Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

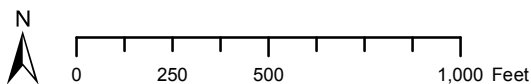
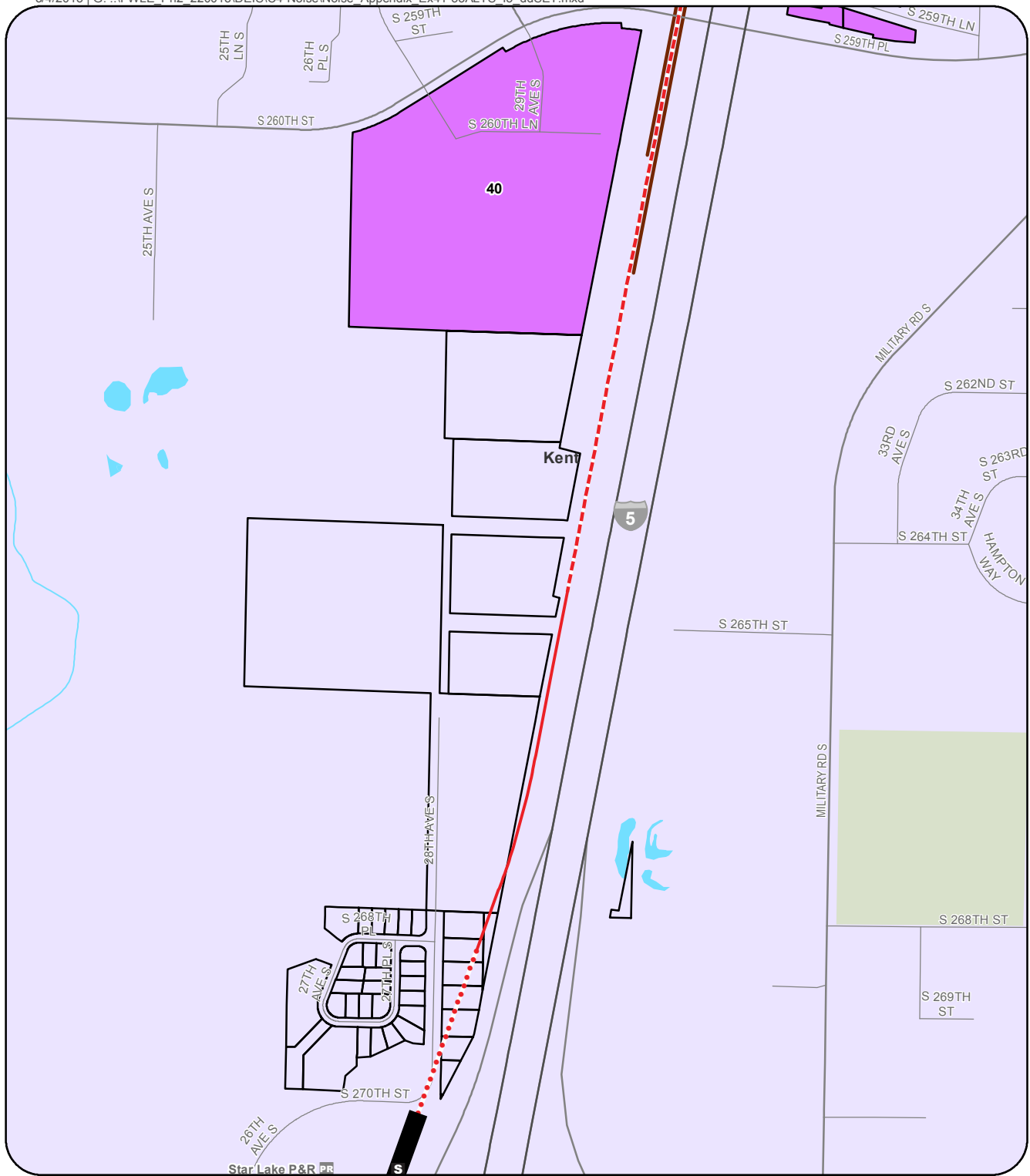


EXHIBIT C-45
Noise Impacts
I-5 Alternative
Federal Way Link Extension

- Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Federal Way Link Extension



I-5 Alternative

- City Boundary
- Street
- Stream
- Waterbody
- Park / Open Space
- Parcel Evaluated for Noise Impact
- Moderate
- Severe
- Both Moderate and Severe
- Residual Noise Impact Requiring Sound Insulation
- Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

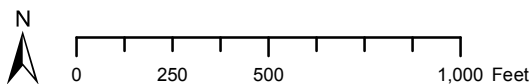
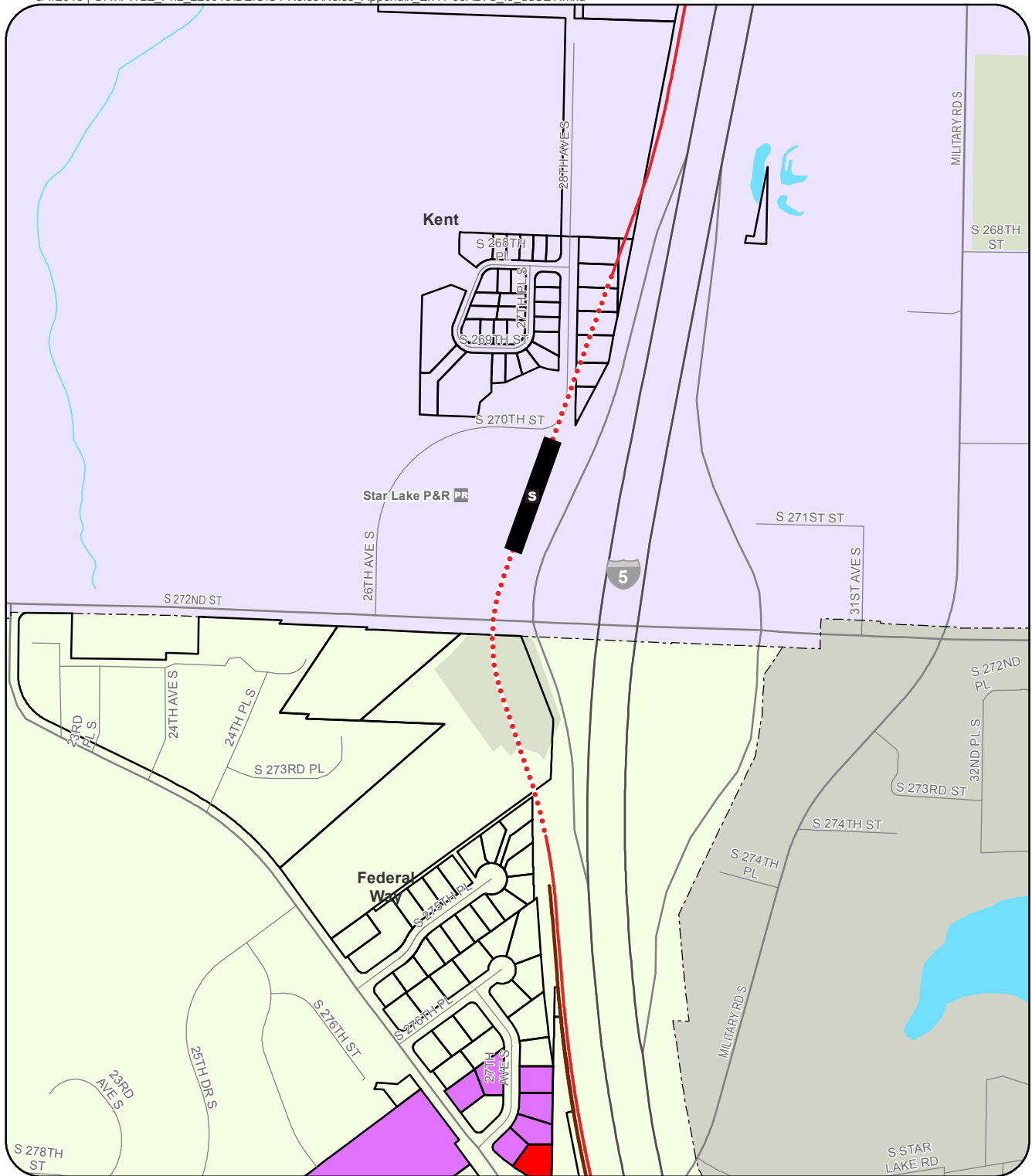


EXHIBIT C-47 Noise Impacts I-5 Alternative

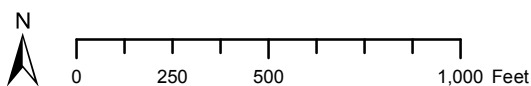
Federal Way Link Extension



- | | | |
|------------------------|---------------------|--|
| I-5 Alternative | --- City Boundary | □ Parcel Evaluated for Noise Impact |
| --- Elevated | — Street | ■ Moderate |
| — At-Grade | — Stream | ■ Severe |
| ... Trench | ■ Waterbody | ■ Both Moderate and Severe |
| ■ Station | ■ Park / Open Space | ■ Residual Noise Impact Requiring Sound Insulation |
| | | — Sound Walls |

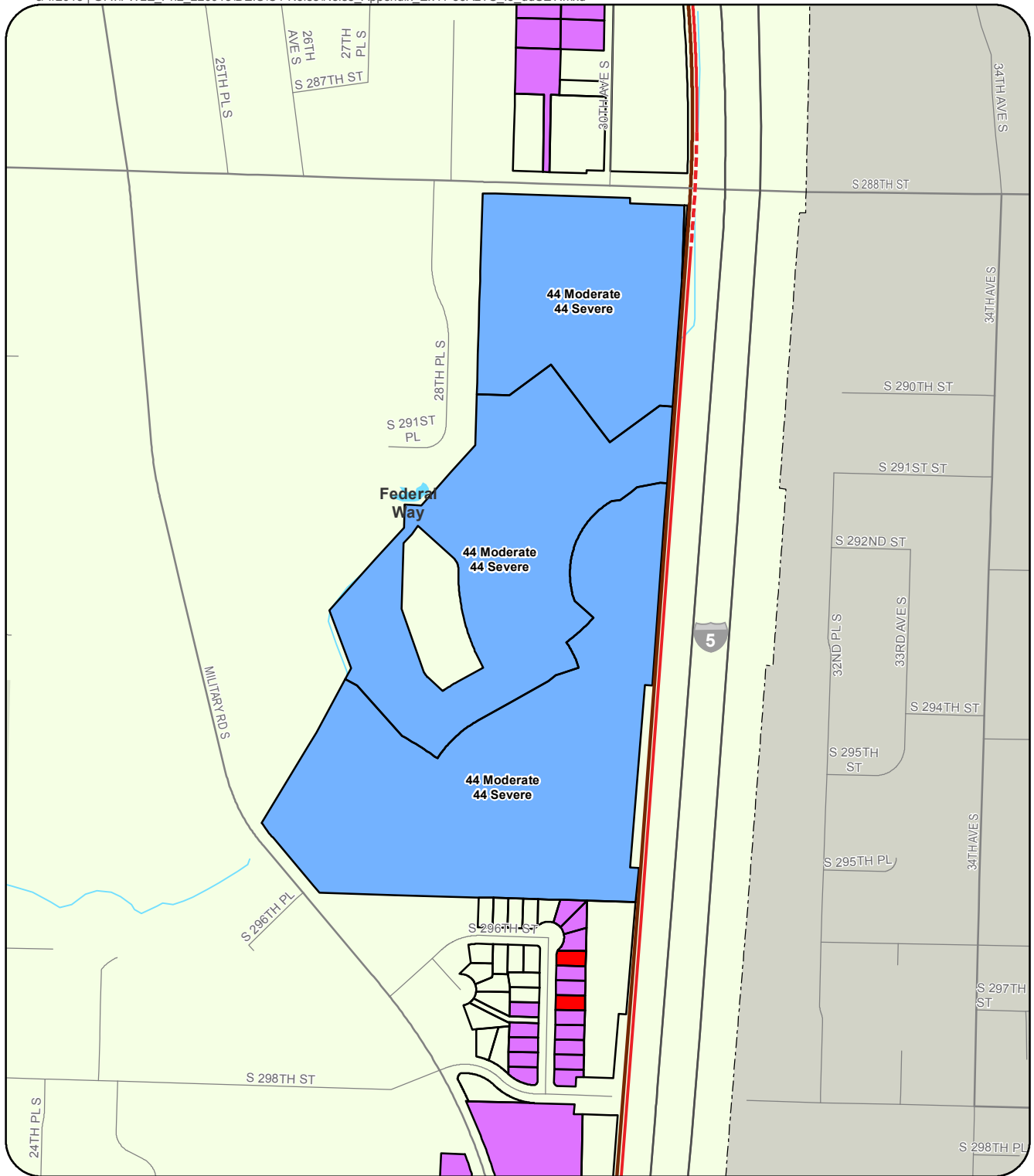
Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



- Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Federal Way Link Extension



Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

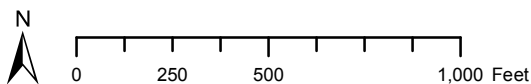
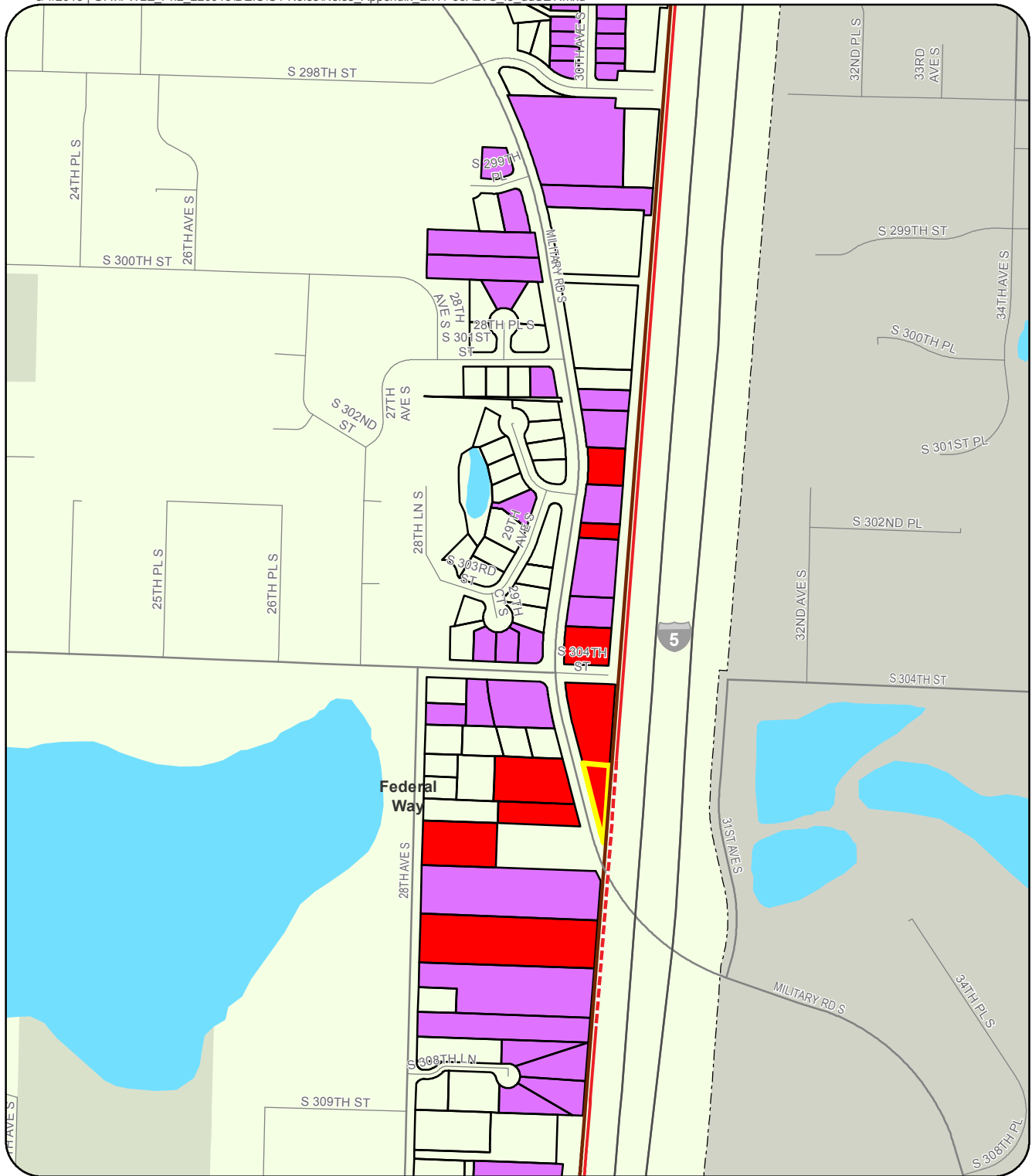


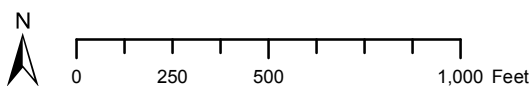
EXHIBIT C-50
Noise Impacts
I-5 Alternative
Federal Way Link Extension



- I-5 Alternative**
- City Boundary
 - Street
 - Stream
 - Waterbody
 - Park / Open Space
 - Parcel Evaluated for Noise Impact
 - Moderate
 - Severe
 - Both Moderate and Severe
 - Residual Noise Impact Requiring Sound Insulation
 - Sound Walls
 - Elevated
 - At-Grade
 - Trench
 - Station

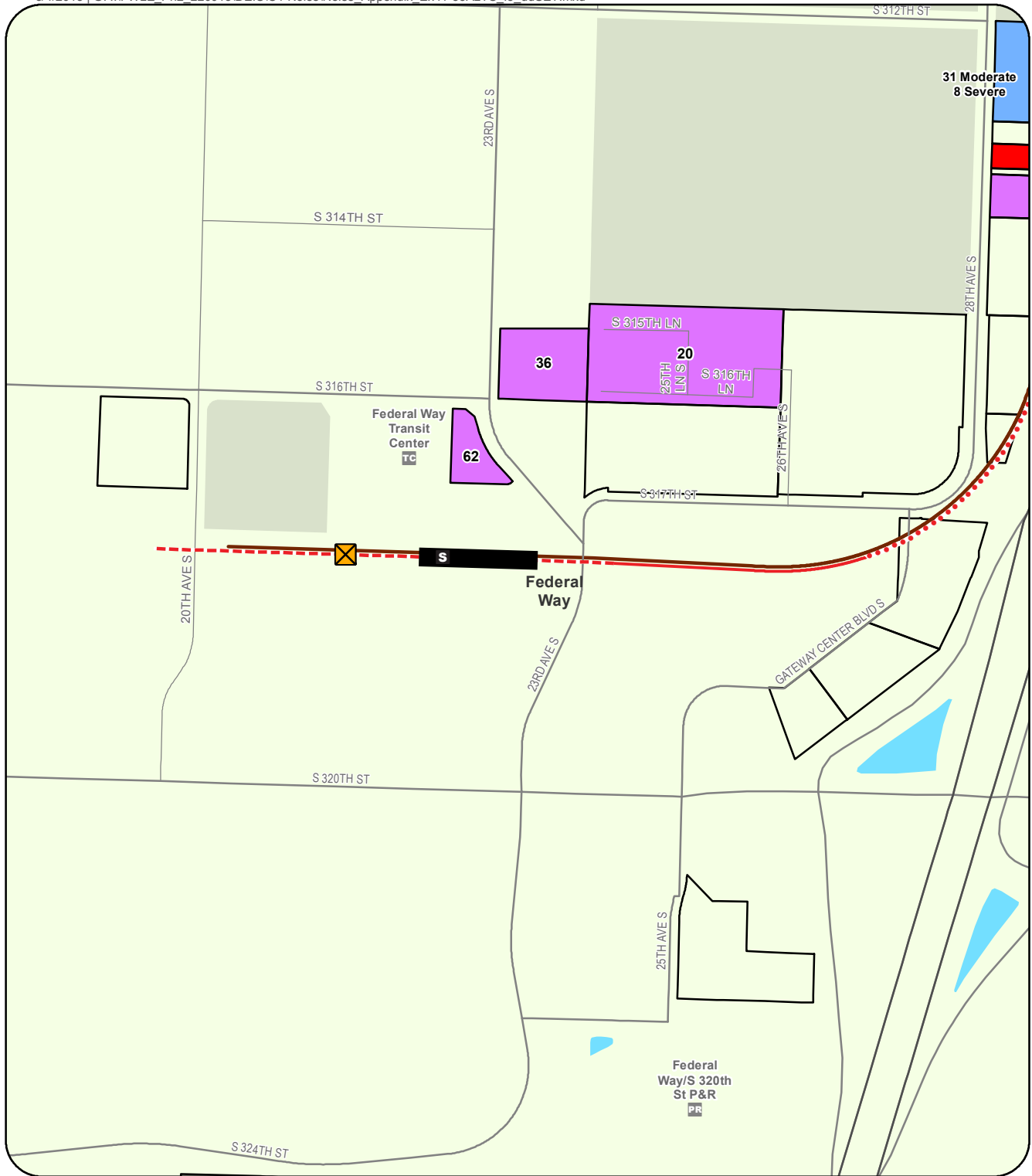
Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



- Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

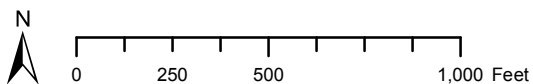
Federal Way Link Extension

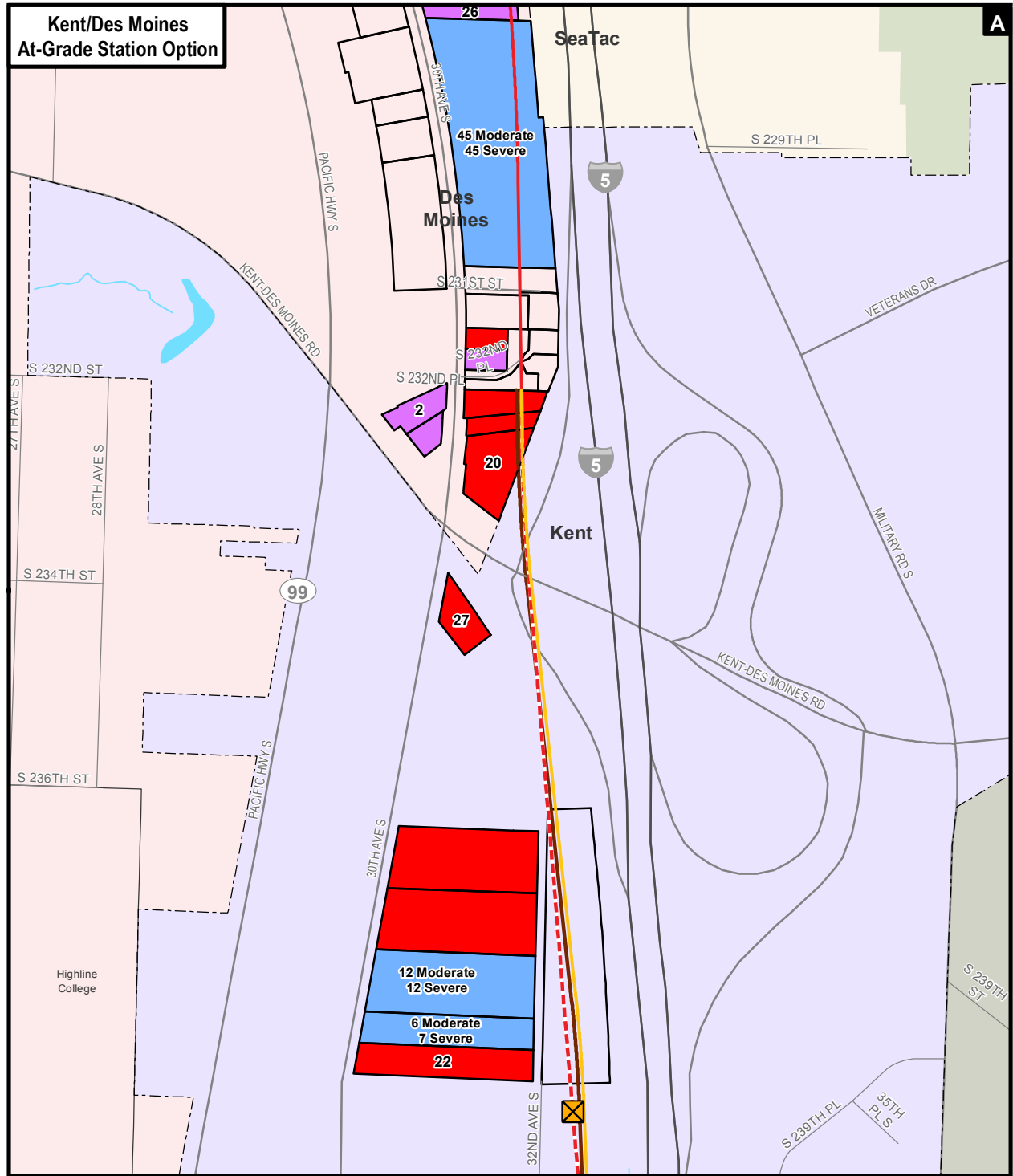


- | | | |
|--------------------------|-------------------|--|
| I-5 Alternative | --- City Boundary | Parcel Evaluated for Noise Impact |
| - - - Elevated | — Street | Moderate |
| — At-Grade | — Stream | Severe |
| ... Trench | Waterbody | Both Moderate and Severe |
| S Station | Park / Open Space | Residual Noise Impact Requiring Sound Insulation |
| X Crossover Point | | Sound Walls |

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





I-5 Alternative

- Elevated
- At-Grade
- ... Trench

Options

- Elevated
- At-Grade

S Station

- ⊗ Crossover Points

- City Boundary

- Street

- Stream

- Waterbody

- Park / Open Space

Parcel Evaluated for Noise Impact

- Moderate

- Severe

- Both Moderate and Severe

- Residual Noise Impact Requiring Sound Insulation

- Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

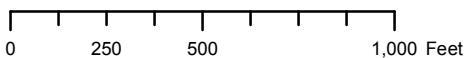
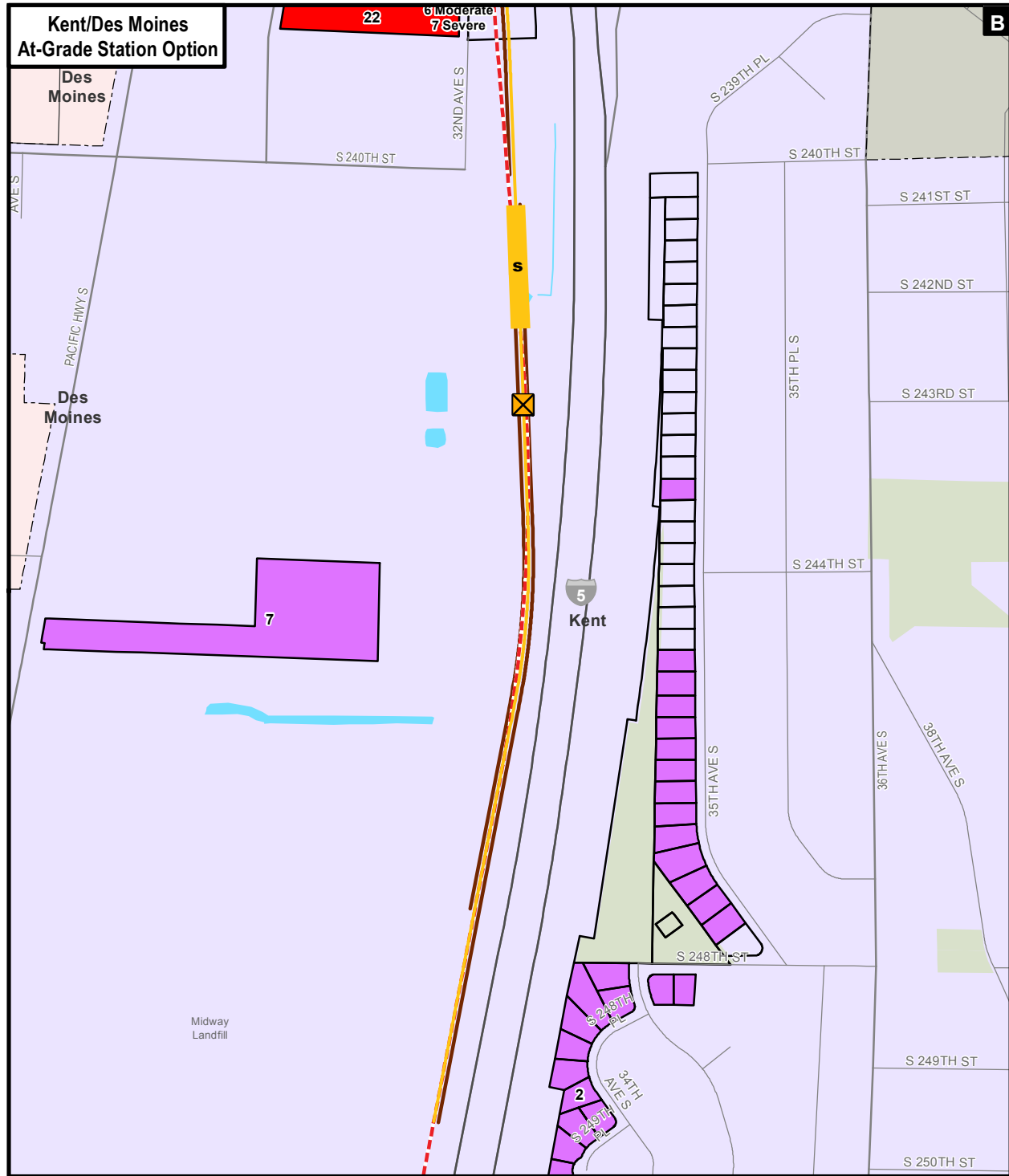


EXHIBIT C-54

Noise Impacts

I-5 Alternative Kent/Des Moines At-Grade Station Option

Federal Way Link Extension



- I-5 Alternative**
- Elevated
 - At-Grade
 - ... Trench
- Options**
- At-Grade
 - S** Station

- Crossover Point
- City Boundary
- Street
- Stream
- Waterbody
- Park / Open Space

- Parcel Evaluated for Noise Impact
- Moderate
- Severe
- Both Moderate and Severe

- Residual Noise Impact Requiring Sound Insulation
- Sound Walls

Notes:

- 1) Noise impact is 1 unit per parcel unless otherwise noted.
- 2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

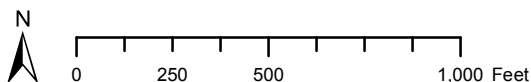
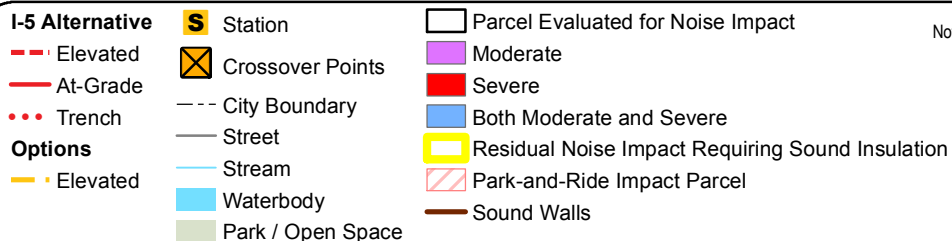
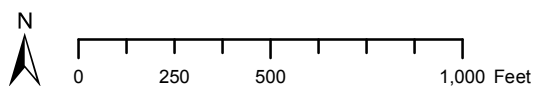


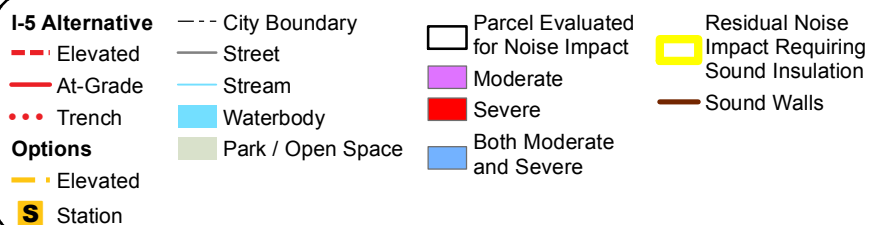
EXHIBIT C-55
Noise Impacts
 I-5 Alternative Kent/Des Moines At-Grade Station Option
 Federal Way Link Extension



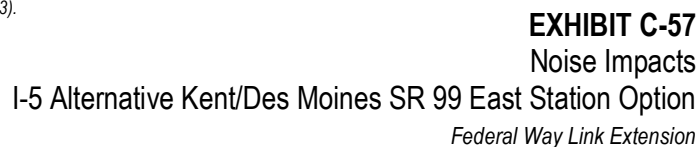
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

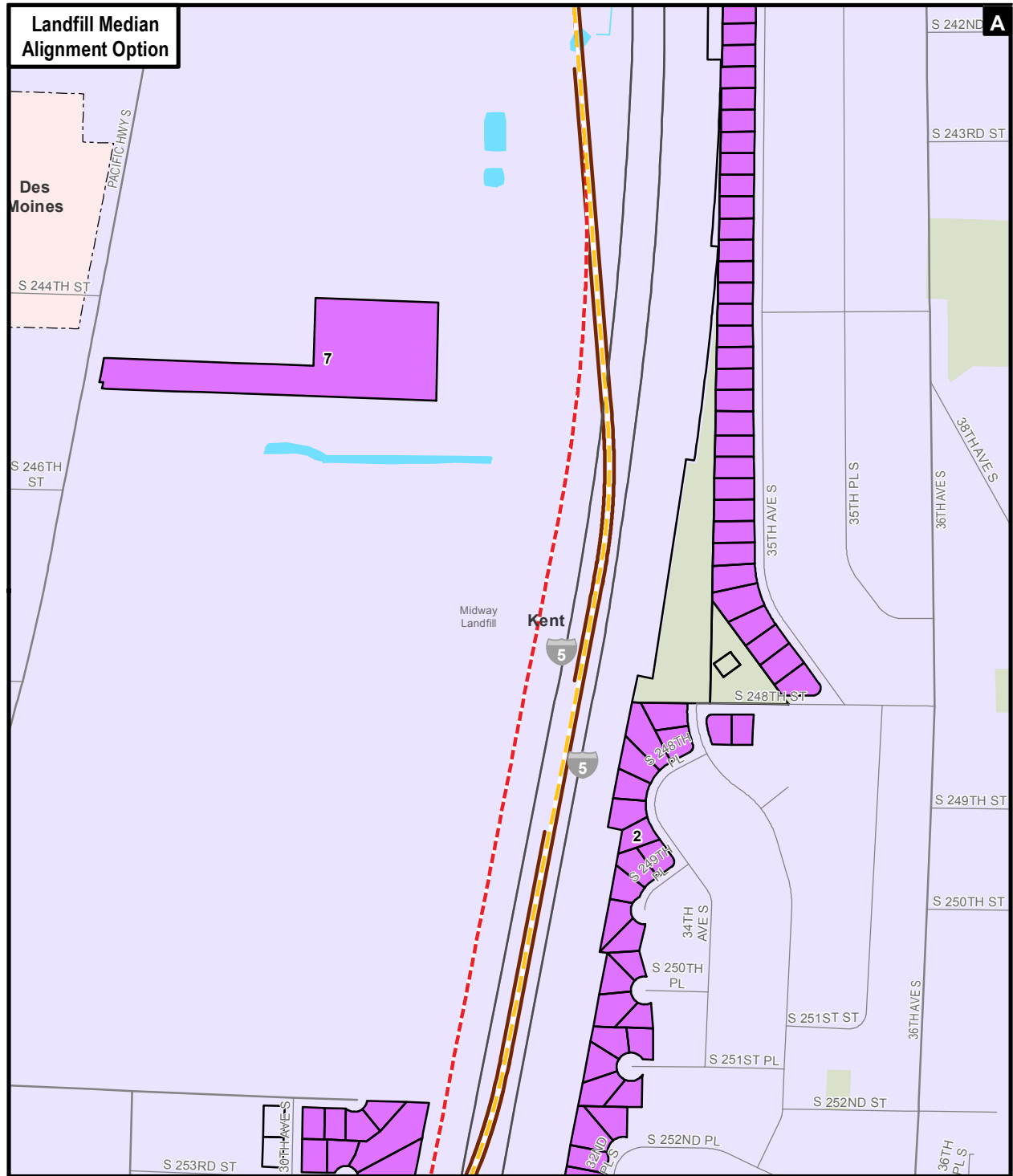


3). **EXHIBIT C-56**
Noise Impacts
I-5 Alternative Kent/Des Moines SR 99 East Station Option
Federal Way Link Extension



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





I-5 Alternative

- At-Grade
- - - Elevated
- • • Trench

Options

- Elevated
- S** Station
- - - City Boundary
- Street

— Stream

— Waterbody

— Park / Open Space

— Parcel Evaluated for Noise Impact

— Moderate

— Severe

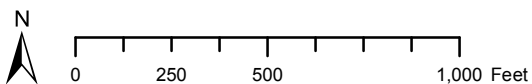
— Both Moderate and Severe

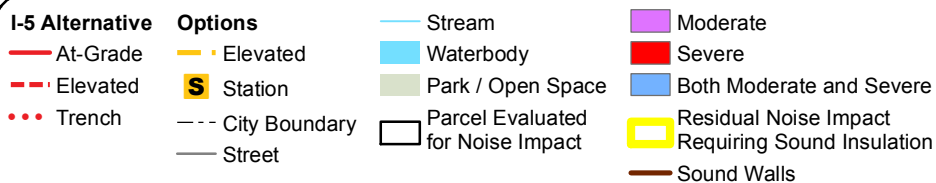
— Residual Noise Impact Requiring Sound Insulation

— Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

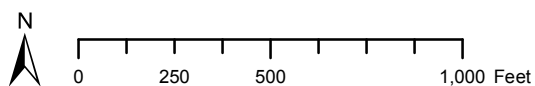
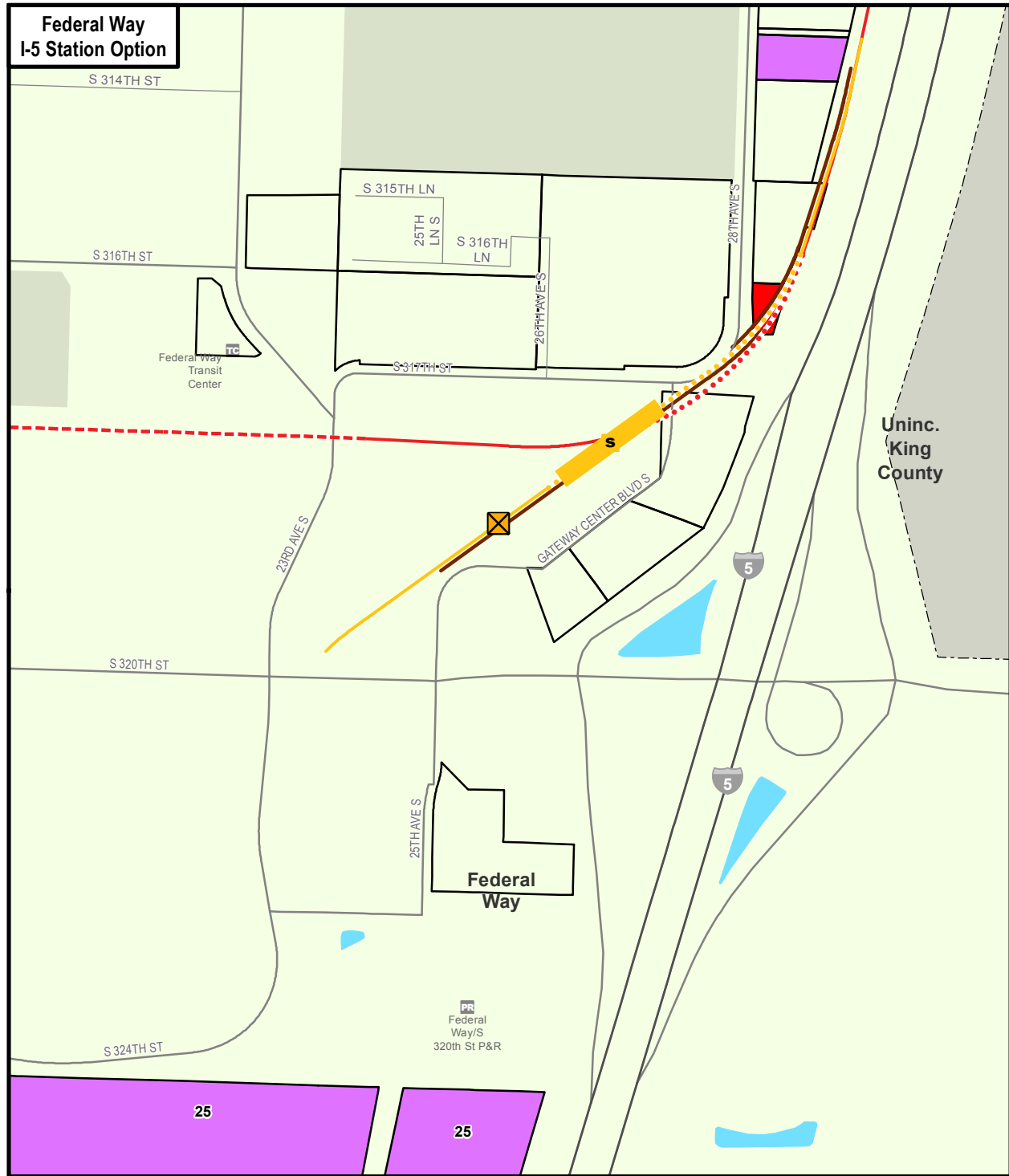


EXHIBIT C-59
Noise Impacts
I-5 Alternative Landfill Median Alignment Option
Federal Way Link Extension



I-5 Alternative

- Elevated
- At-Grade
- ... Trench

Options

- At-Grade
- ... Trench

Station

- ⊠ Crossover Point
- City Boundary
- Street
- Stream
- Waterbody
- Park / Open Space

Parcel Evaluated for Noise Impact

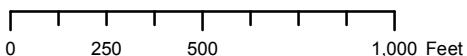
- Moderate
- Severe
- Both Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

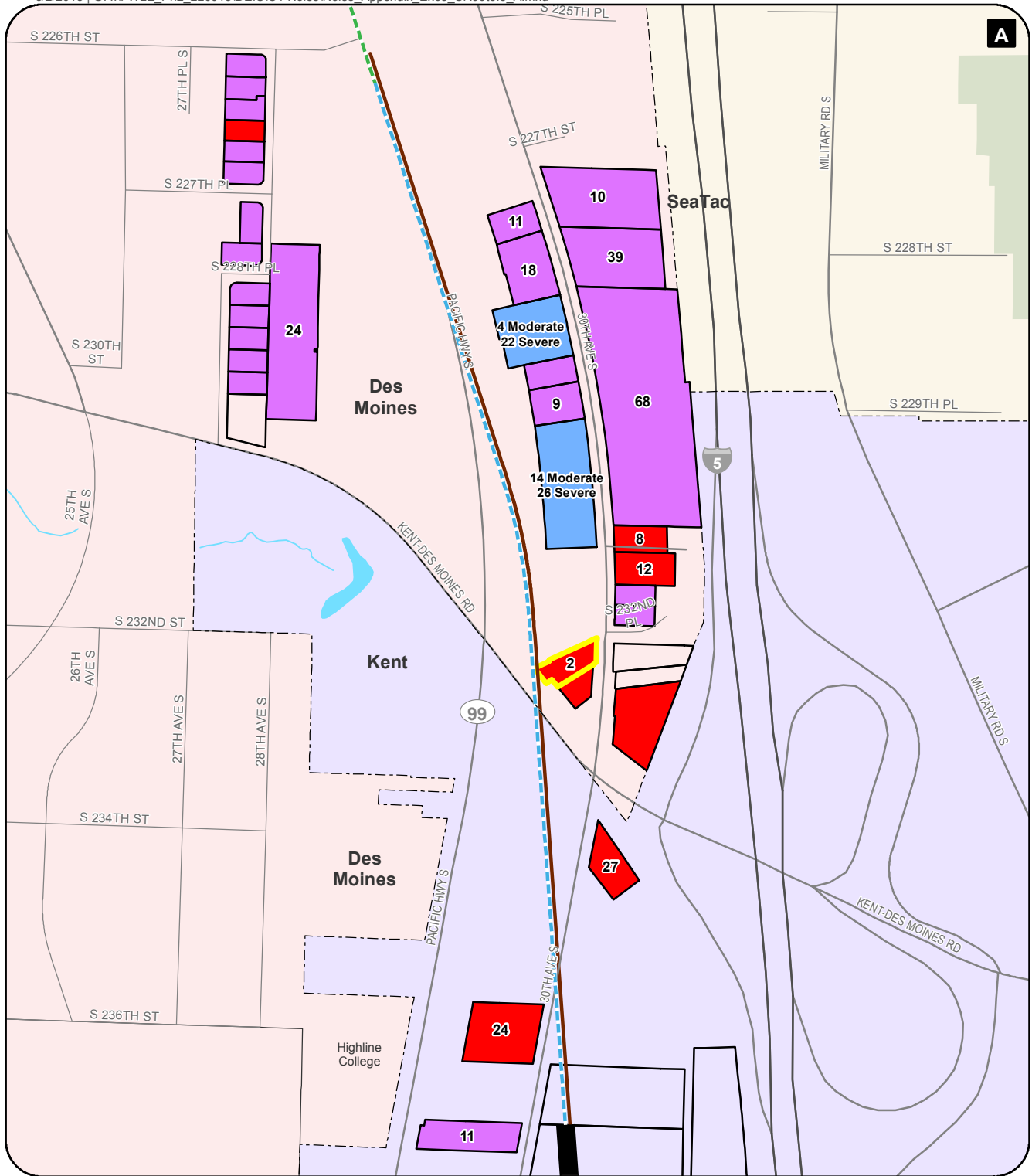
- Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).







SR 99 to I-5 Alternative

— Elevated

S Station

SR 99 Alternative

— Elevated

--- City Boundary

— Street

— Stream

— Waterbody

— Park / Open Space

□ Parcel Evaluated for Noise Impact

□ Moderate

□ Severe

□ Both Moderate and Severe

□ Residual Noise Impact Requiring Sound Insulation

— Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT C-63

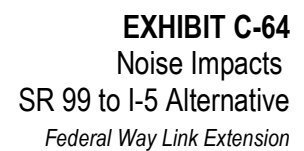
Noise Impacts

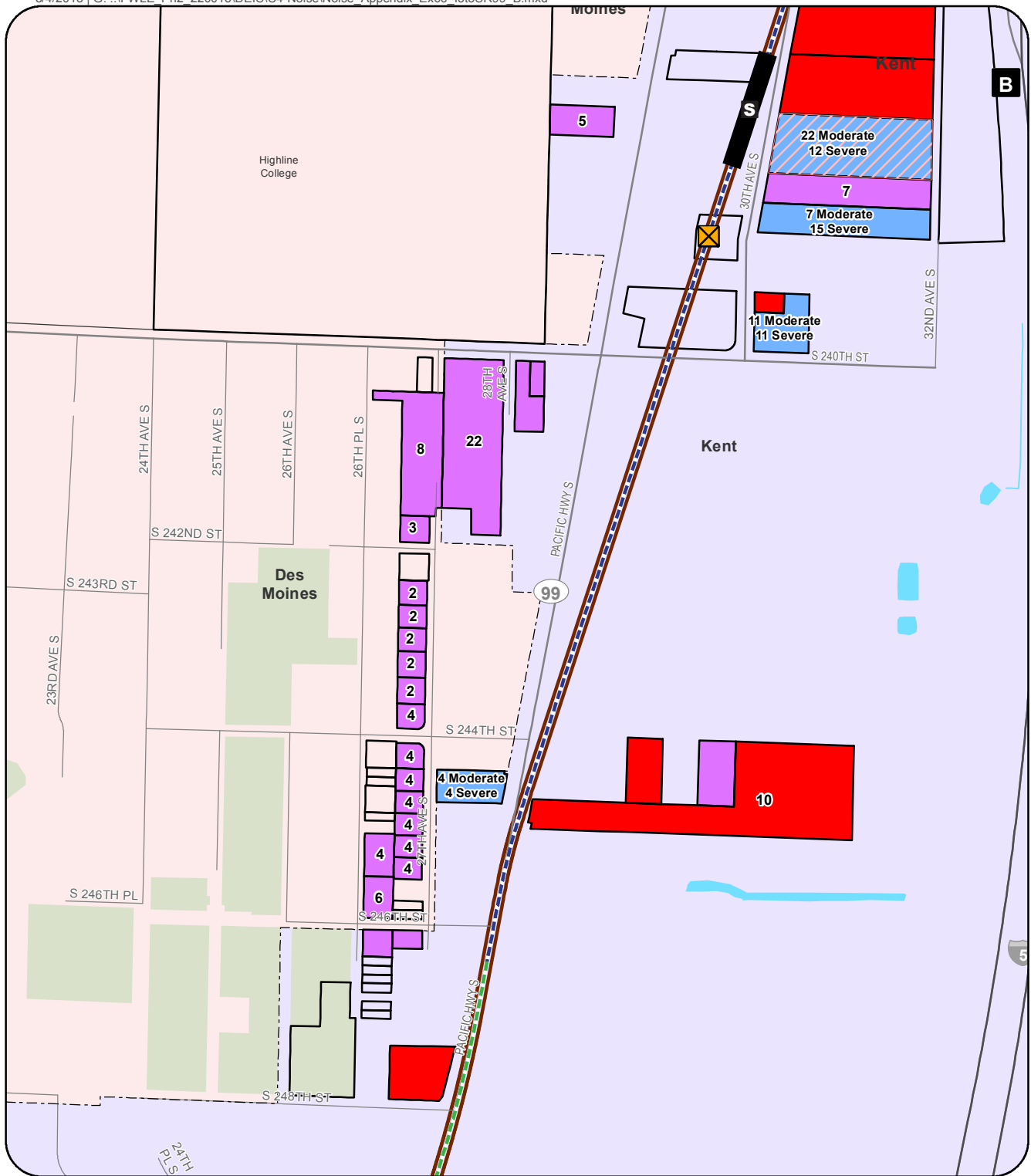
SR 99 to I-5 Alternative

Federal Way Link Extension



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





I-5 to SR 99 Alternative

— Elevated

S Station

SR 99 Alternative

— Elevated

X Crossover Point

--- City Boundary

— Street

— Stream

— Waterbody

— Park / Open Space

□ Parcel Evaluated for Noise Impact

Moderate

Severe

Both Moderate and Severe

Residual Noise Impact

Requiring Sound Insulation

Park-and-Ride Impact Parcel

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

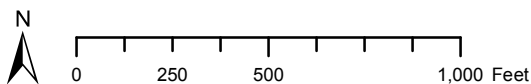
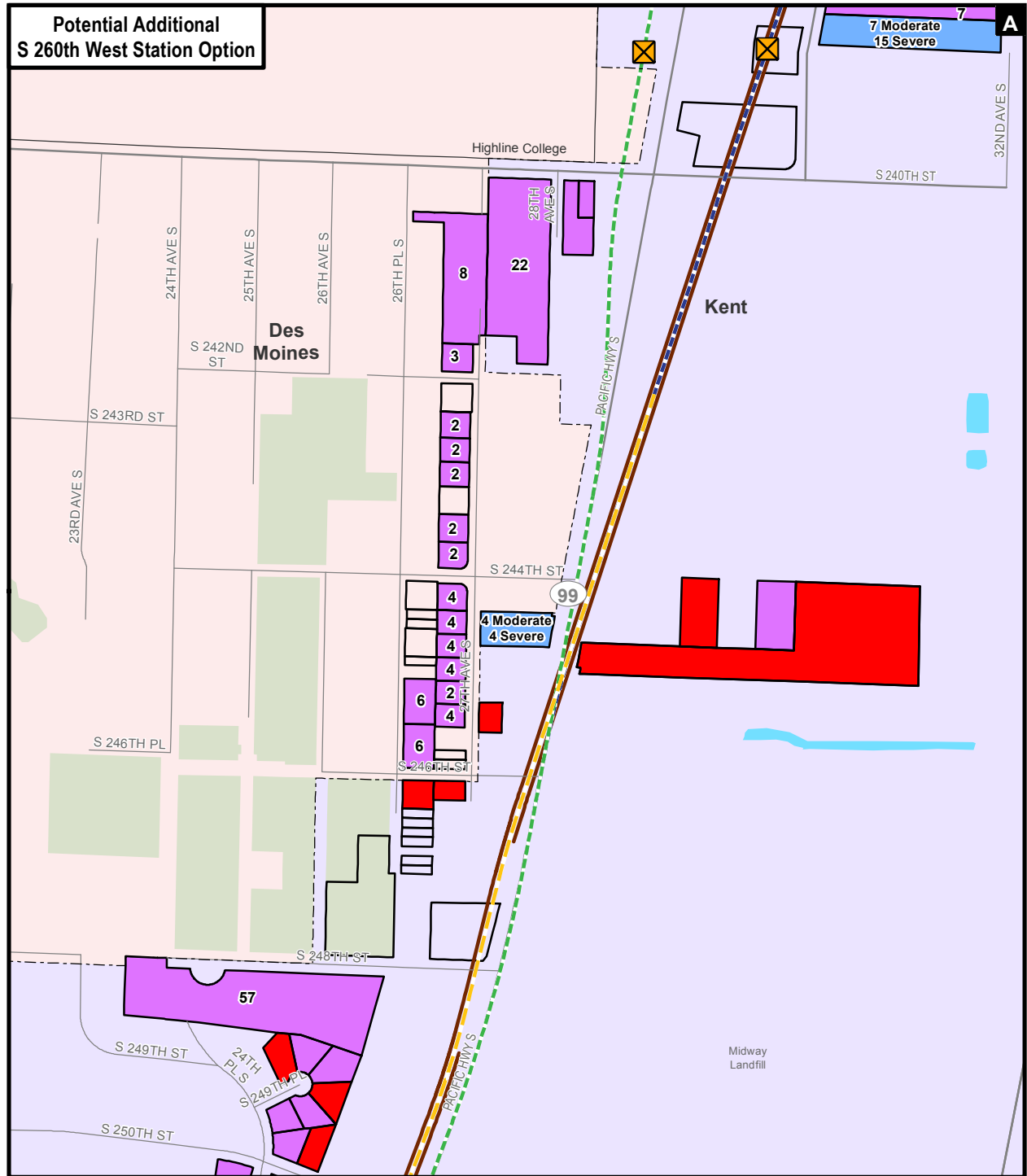


EXHIBIT C-66

Noise Impacts

I-5 to SR 99 Alternative

Federal Way Link Extension



SR 99 Alternative

— Elevated

I-5 to SR 99 Alternative

— Elevated

Options

— Elevated

S Station

Crossover Point

--- City Boundary

— Stream

— Waterbody

— Park / Open Space

Parcel Evaluated for Noise Impact

Moderate

Severe

Moderate and Severe

Residual Noise Impact Requiring Sound Insulation

Sound Walls

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

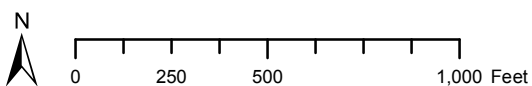
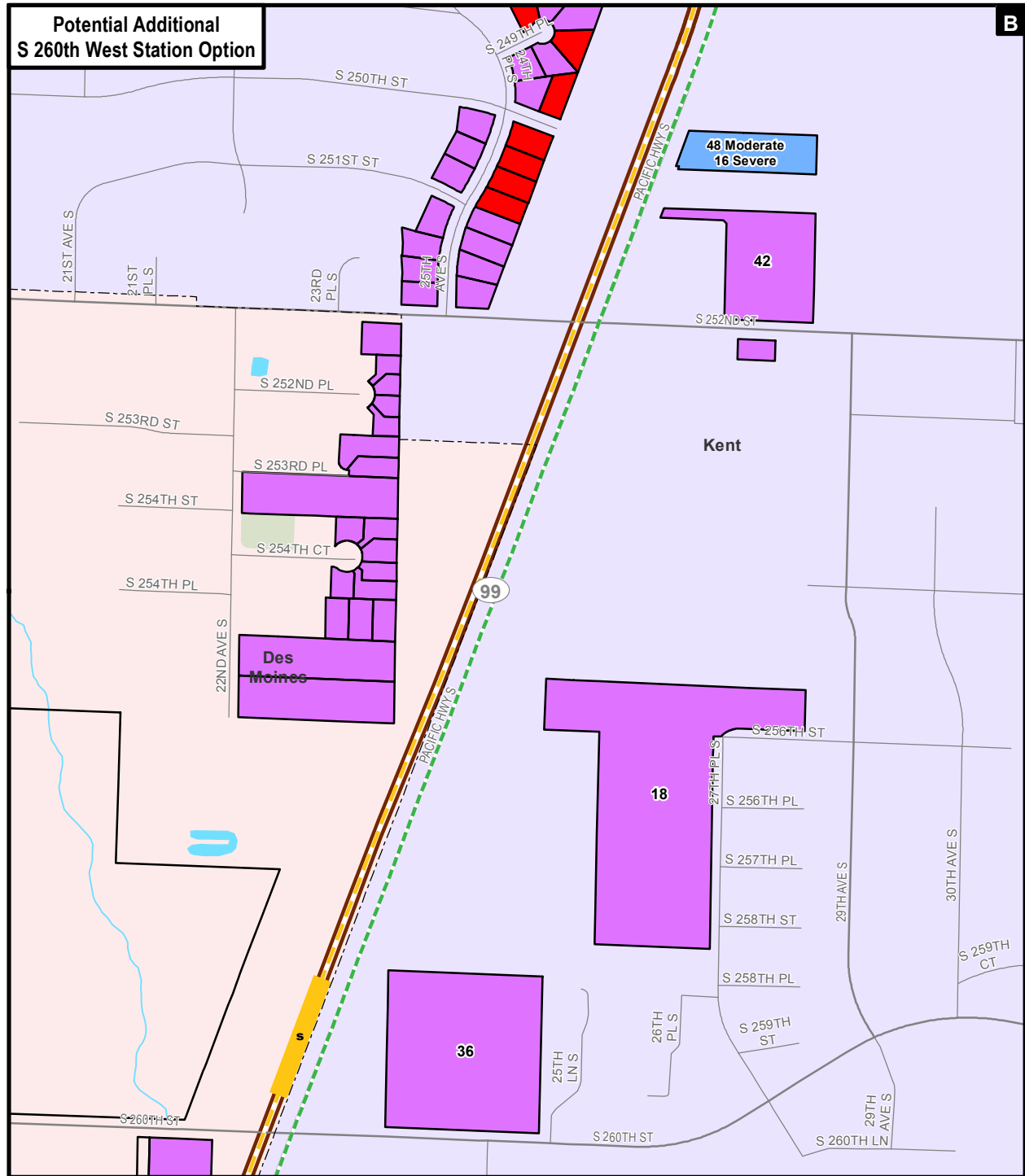


EXHIBIT C-67
Noise Impacts
I-5 to SR 99 Alternative S 260th West Station Option
Federal Way Link Extension



SR 99 Alternative

--- City Boundary

--- Stream

--- Waterbody

--- Park / Open Space

--- Elevated

--- Station

--- Sound Walls

--- Residual Noise Impact Requiring Sound Insulation

--- Moderate

--- Severe

--- Moderate and Severe

--- Parcel Evaluated for Noise Impact

--- Sound Walls

--- Station

Notes: 1) Noise impact is 1 unit per parcel unless otherwise noted.
2) Based on conceptual design drawings, noise wall heights are predicted to range from 4 to 8 feet along elevated guideways, and 6 and 15 feet along at-grade and trench guideways.

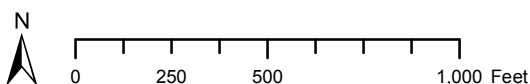
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

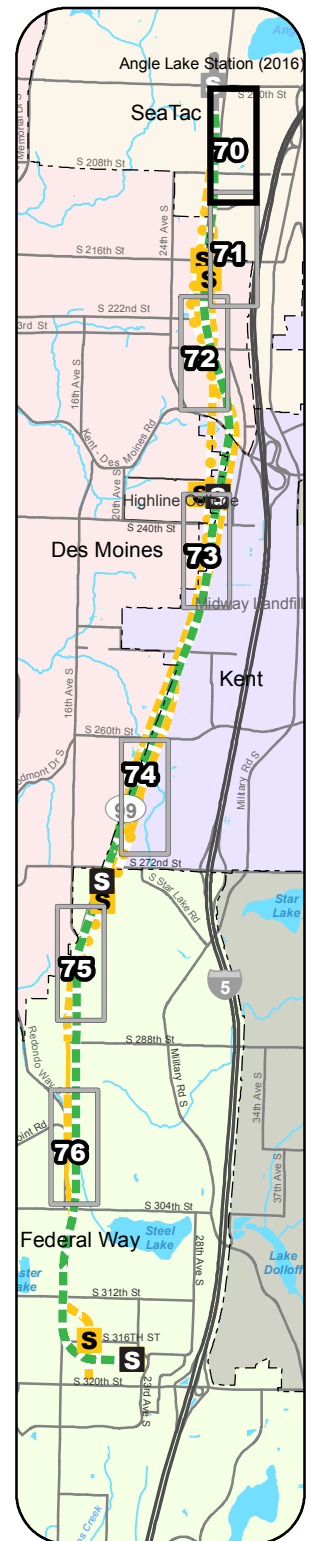
EXHIBIT C-68

Noise Impacts

I-5 to SR 99 Alternative S 260th West Station Option

Federal Way Link Extension

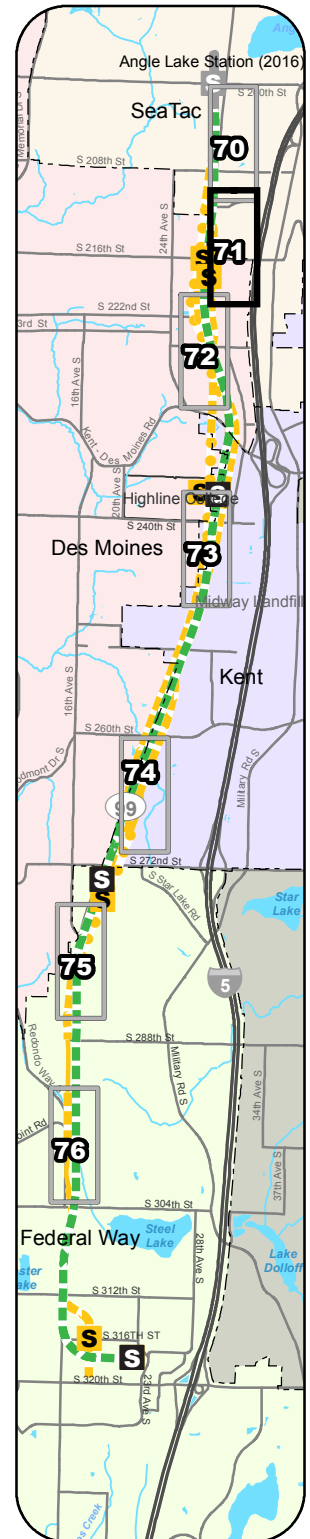
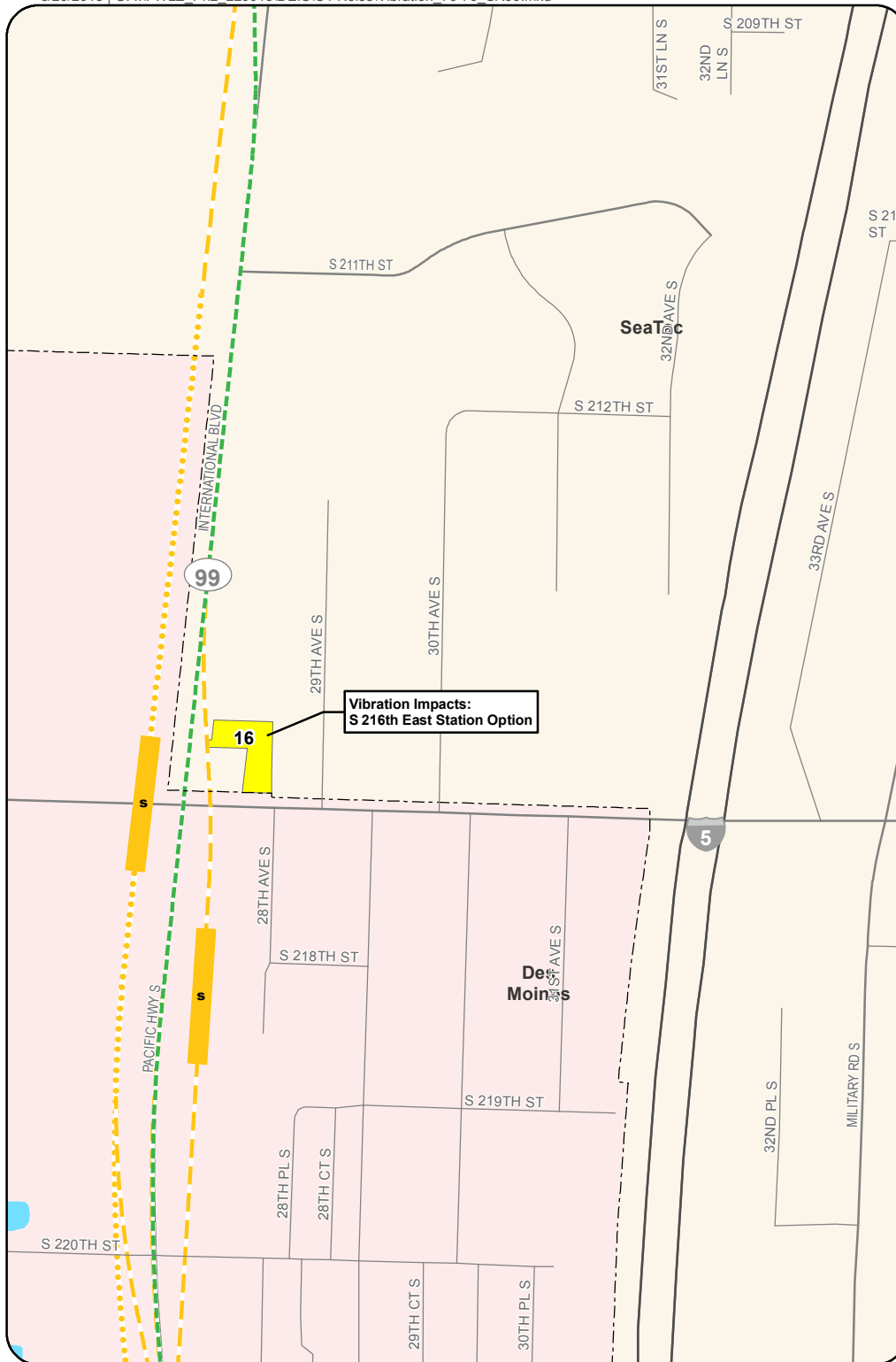




 Waterbody

A north arrow pointing upwards and a scale bar marked from 0 to 1,000 feet in increments of 250 feet.

Federal Way Link Extension



LEGEND

SR 99 Alternative

--- Elevated

■ Station

Options

--- Elevated

--- At-Grade

--- Trench

■ Station

--- City Boundary

--- Street

--- Stream

--- Waterbody

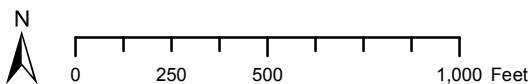
--- Park / Open Space

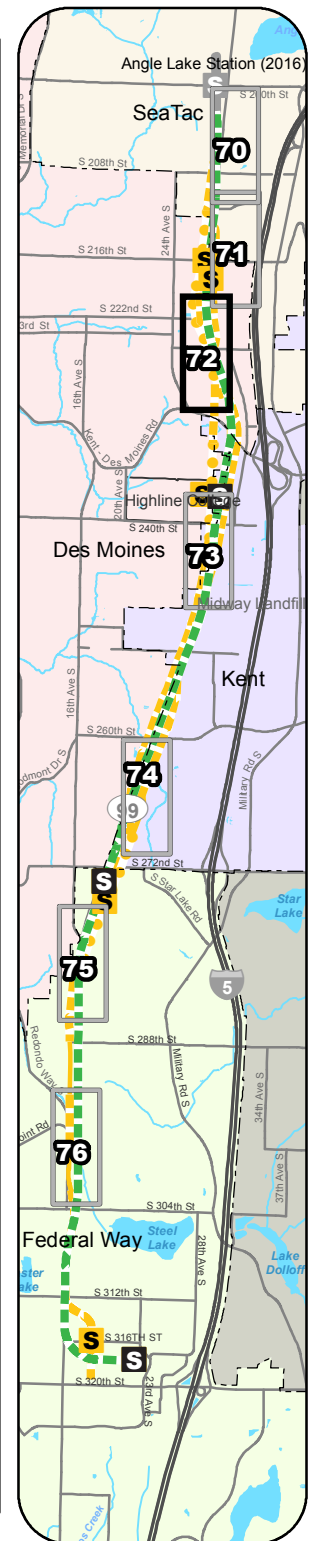
■ Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the SR 99 Alternative impacts.

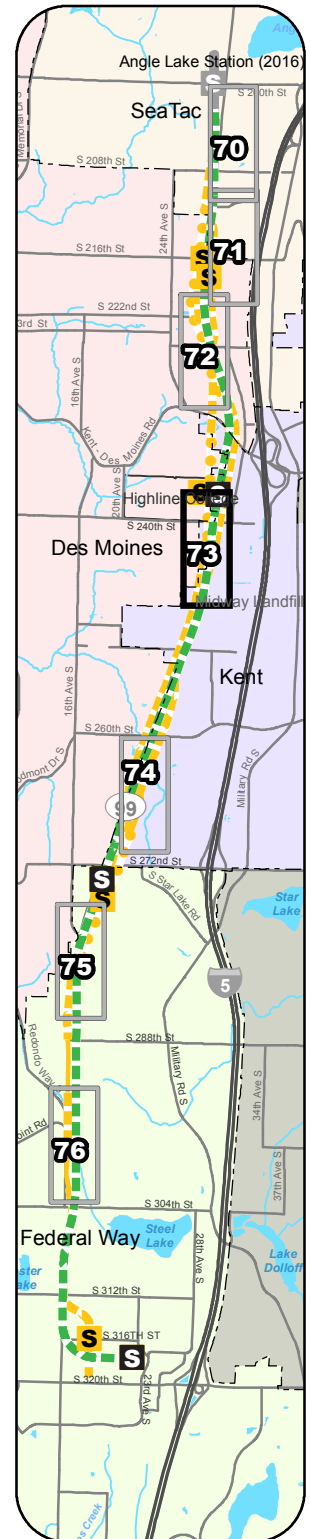
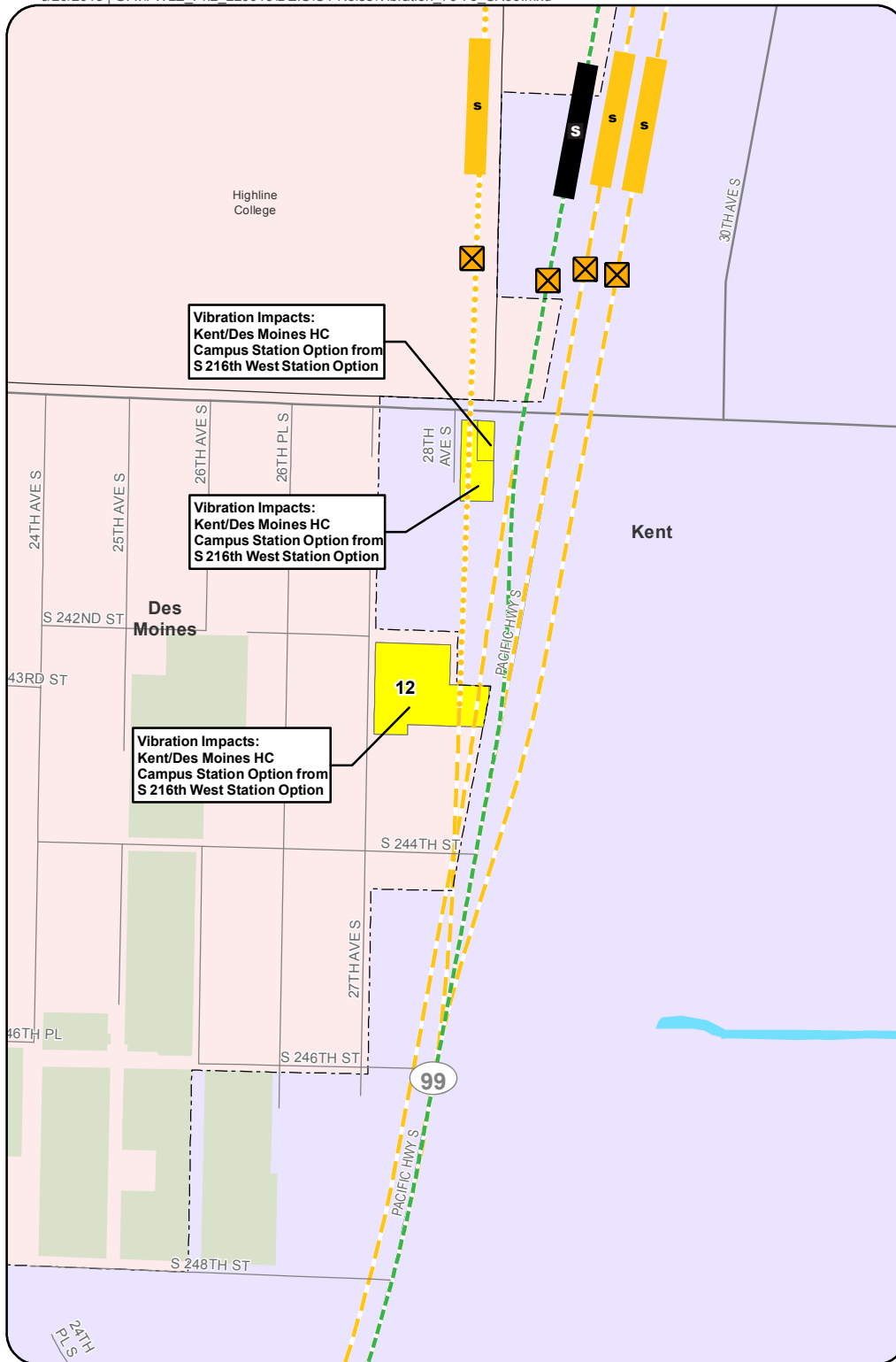
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).





A north arrow pointing upwards and a scale bar marked from 0 to 1,000 feet in increments of 250 feet.

Federal Way Link Extension



LEGEND

SR 99 Alternative

--- Elevated

[S] Station

Options

--- Elevated

--- At-Grade

--- Trench

[S] Station

--- City Boundary

--- Street

--- Stream

--- Waterbody

[X] Crossover Point

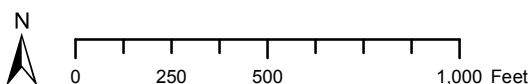
[Green] Park / Open Space

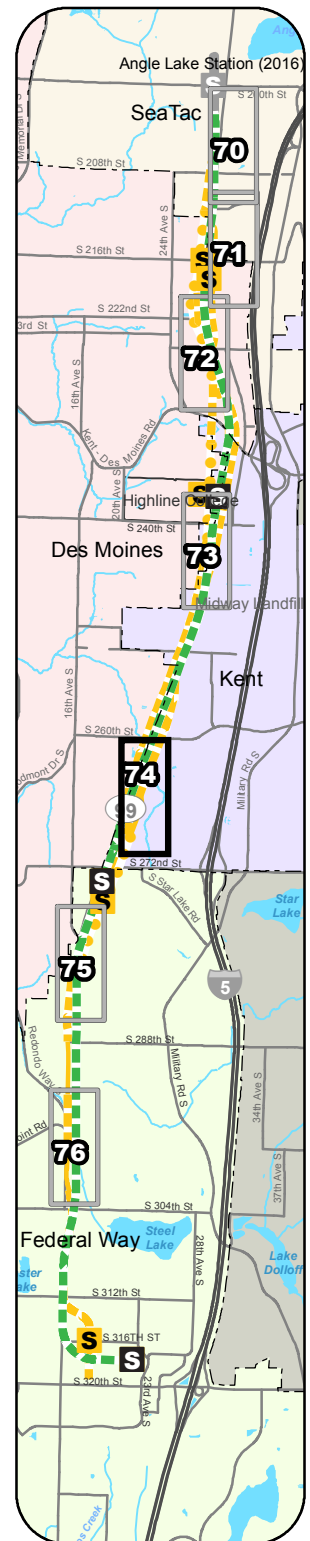
[Yellow] Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the SR 99 Alternative impacts.

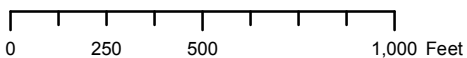
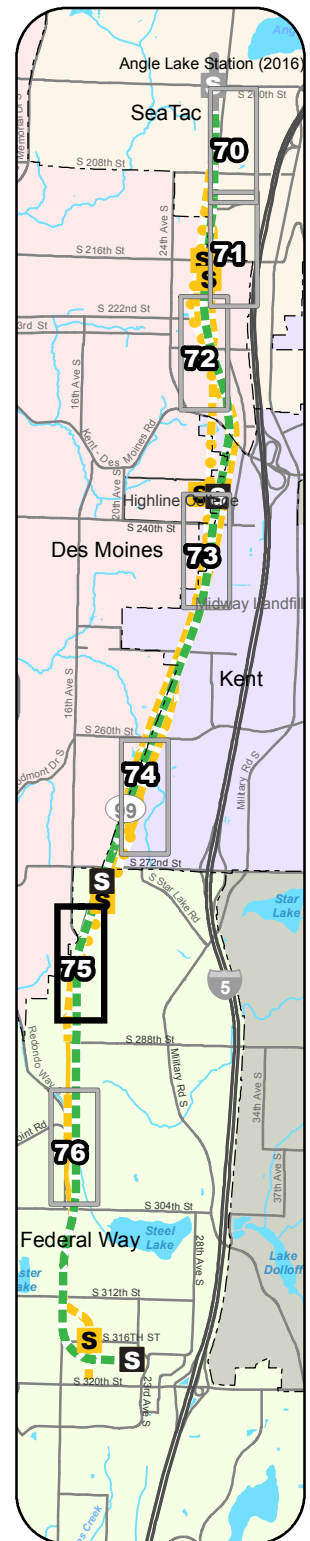
Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



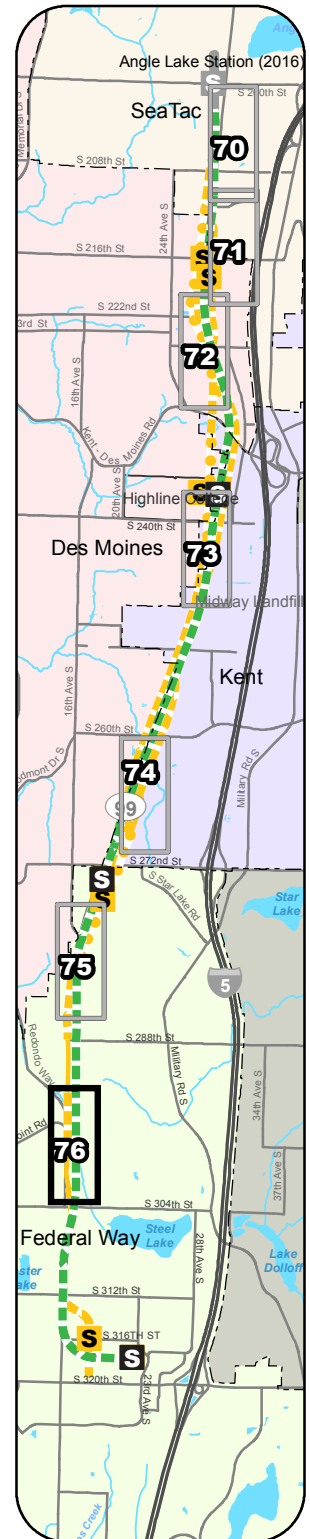


S Station

Federal Way Link Extension

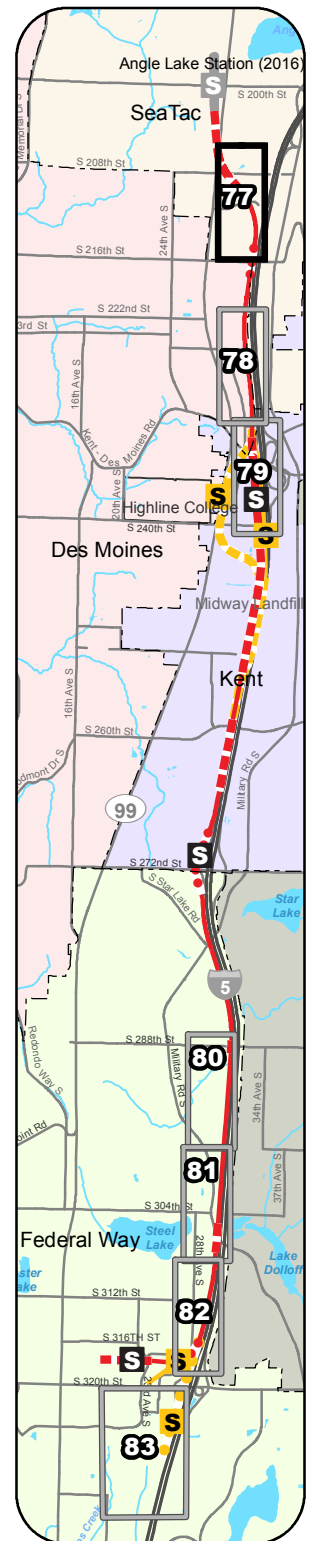


Federal Way Link Extension



 Waterbody

Federal Way Link Extension

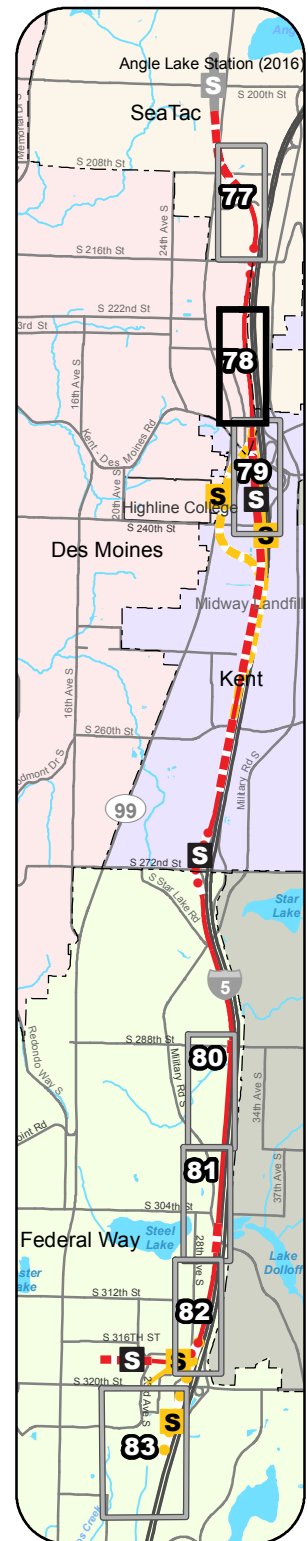


Waterbody

A north arrow pointing upwards and a scale bar marked from 0 to 1,000 feet in increments of 250 feet.

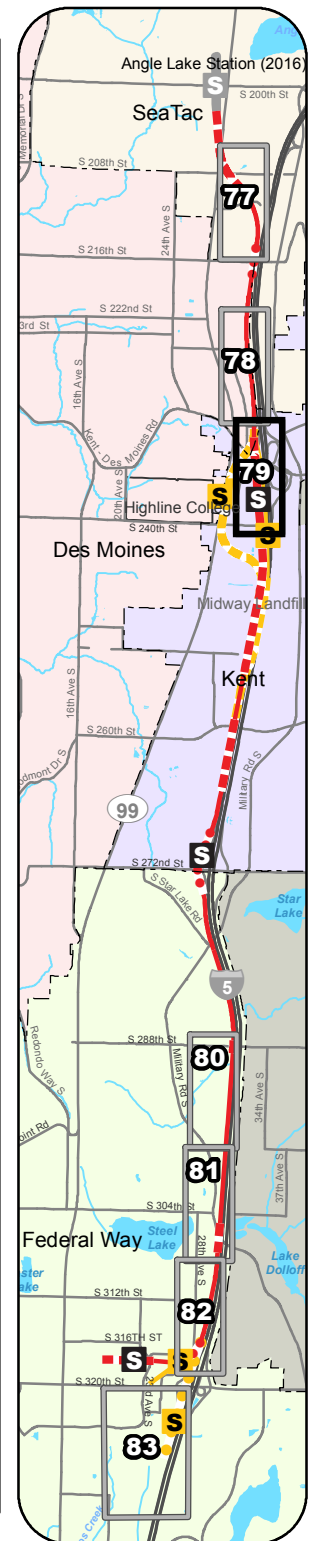
Vibration Impacts I-5 Alternative and Options

Federal Way Link Extension



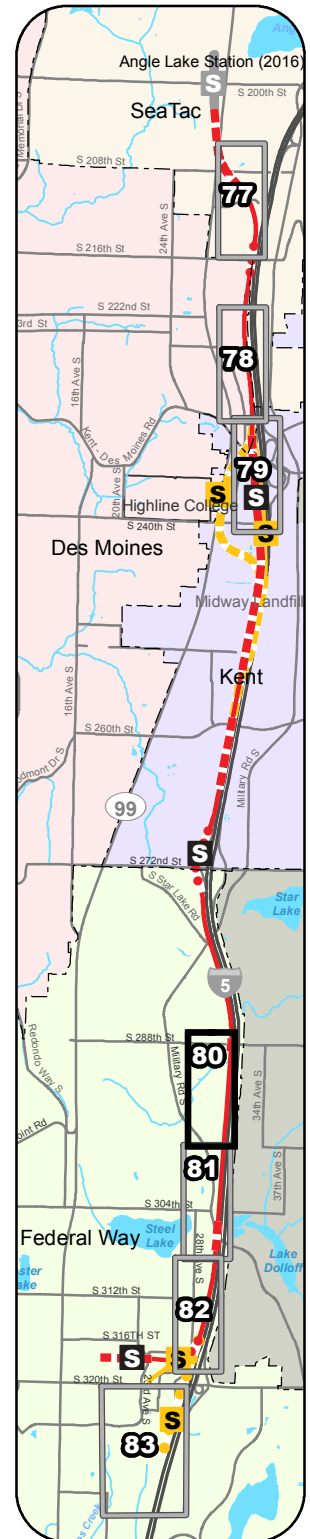
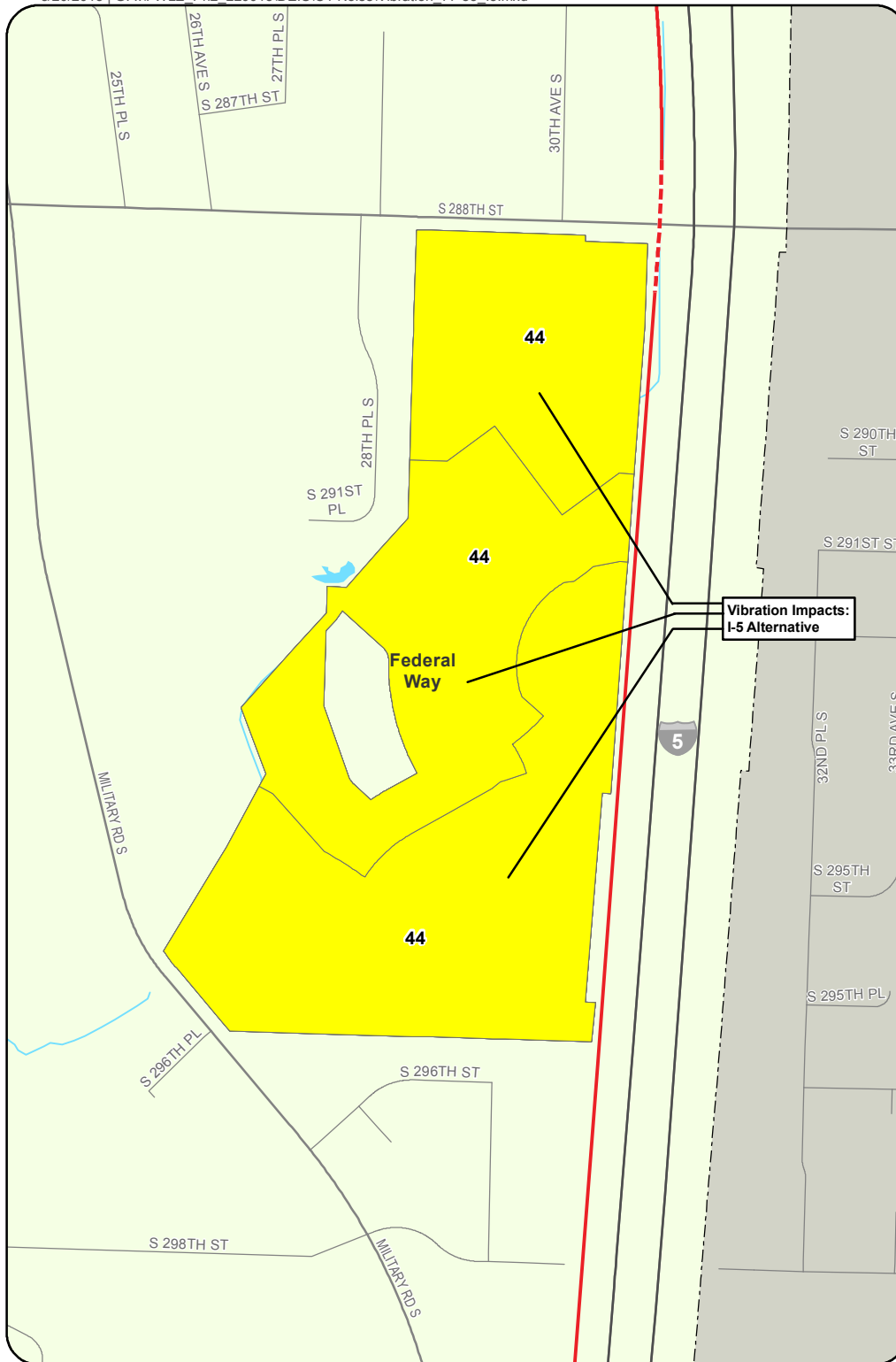
Waterbury,

Federal Way Link Extension



A north arrow pointing upwards and a scale bar marked from 0 to 1,000 feet in increments of 250 feet.

Federal Way Link Extension



LEGEND

I-5 Alternative

--- Elevated

--- At-Grade

... Trench

S Station

Options

--- Elevated

--- At-Grade

... Trench

S Station

--- City Boundary

--- Stream

--- Street

Waterbody

Park / Open Space

Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the I-5 Alternative impacts.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

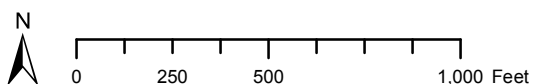
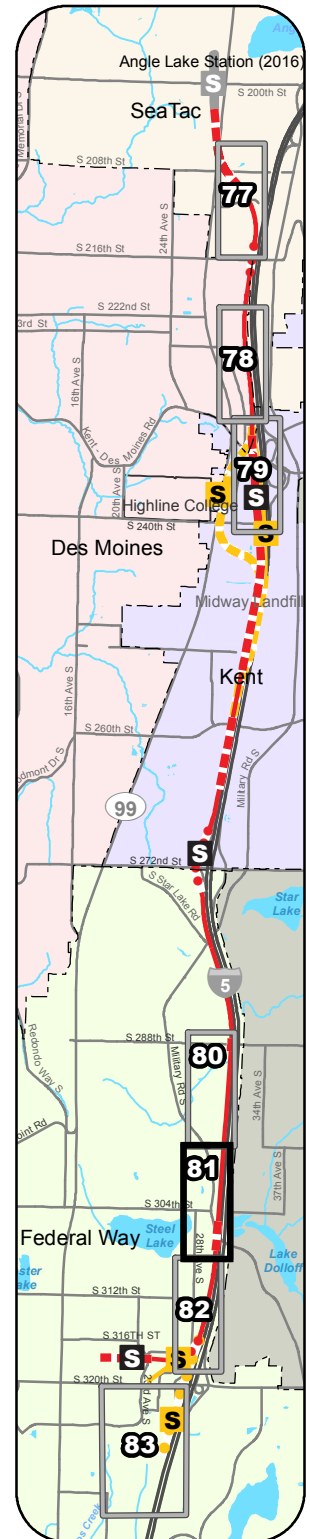
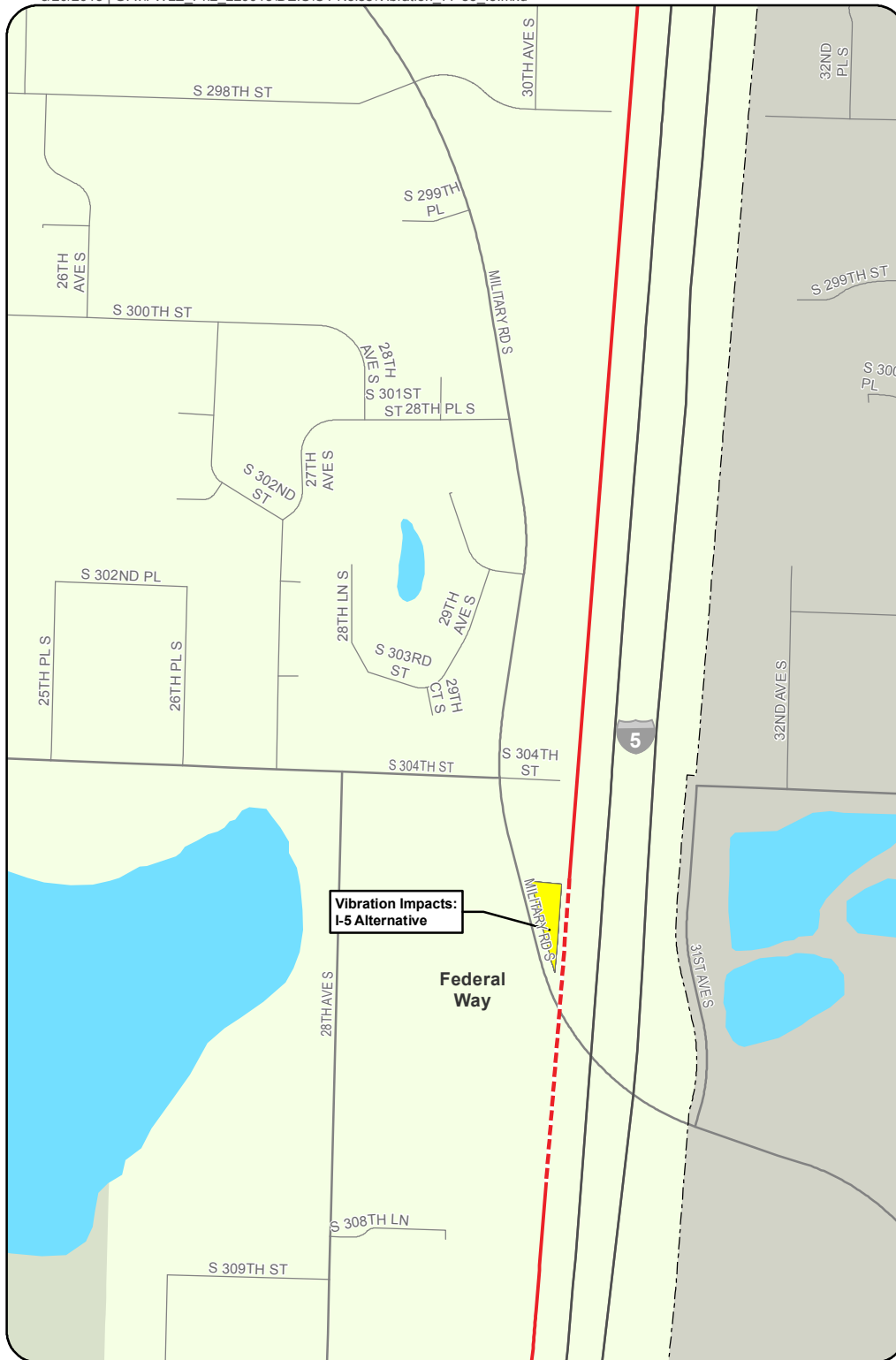


EXHIBIT C-80
Vibration Impacts
I-5 Alternative and Options
Federal Way Link Extension



LEGEND

I-5 Alternative

- Elevated
- At-Grade
- ... Trench
- [S] Station

Options

- Elevated
- At-Grade
- ... Trench
- [S] Station

--- City Boundary

--- Stream

--- Street

Waterbody

Park / Open Space

Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the I-5 Alternative impacts.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

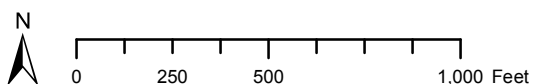
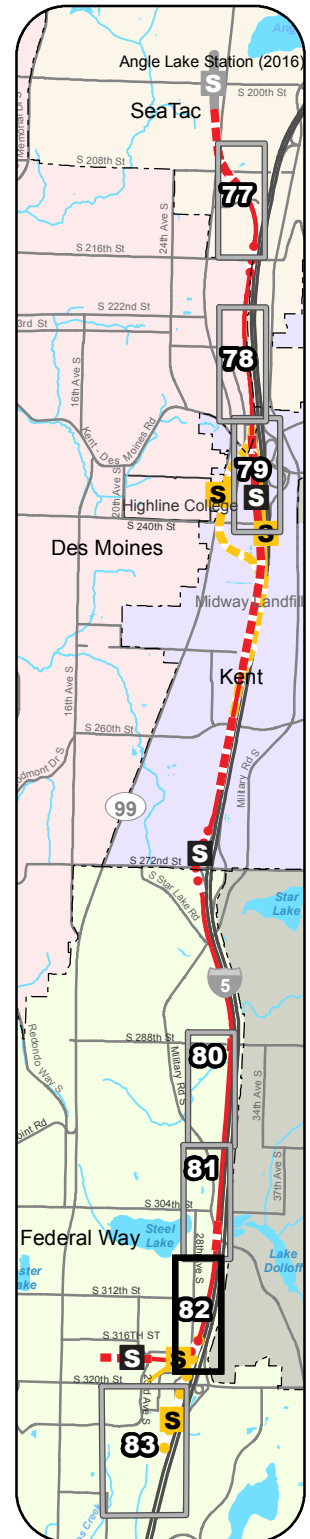
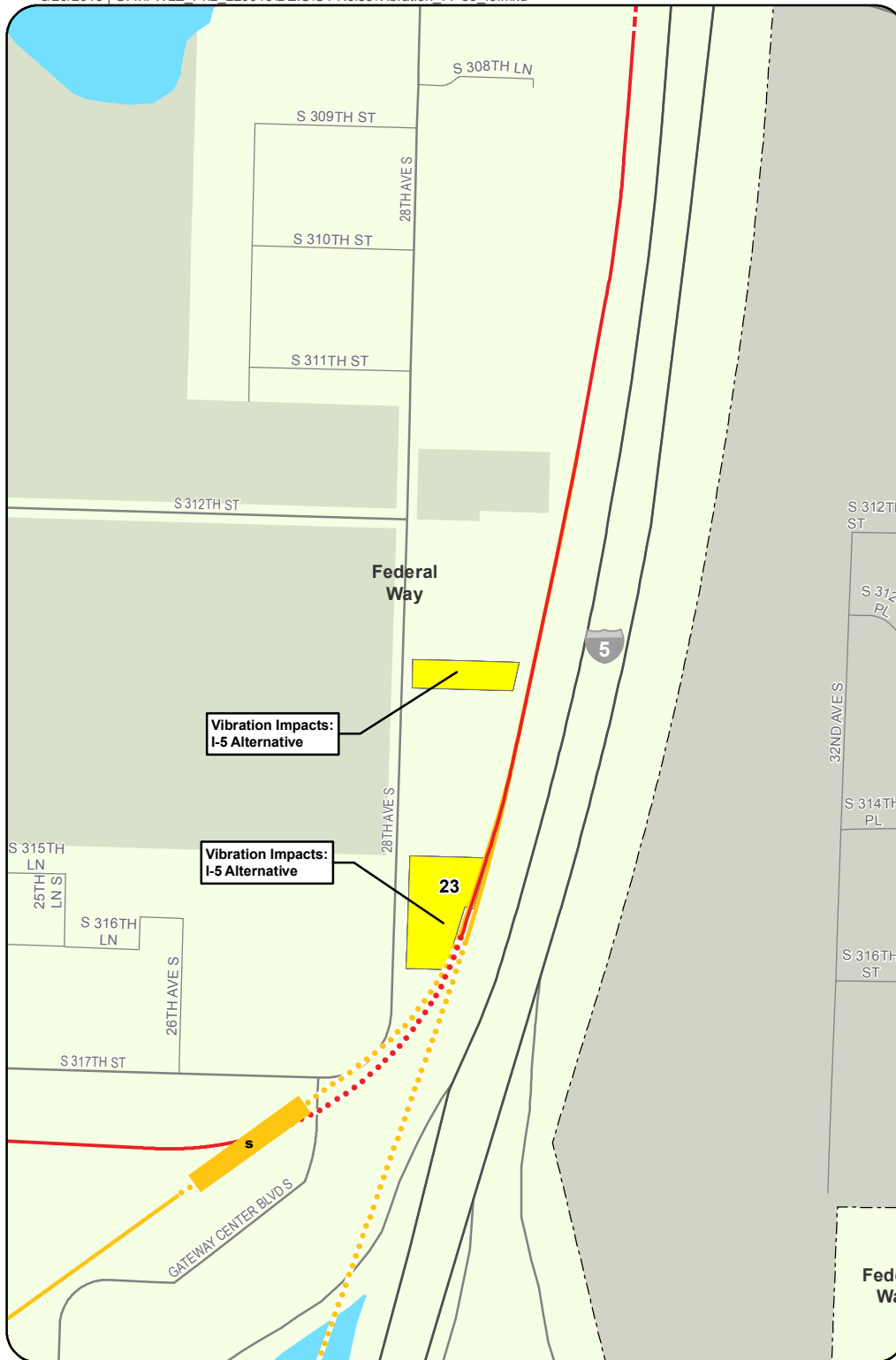


EXHIBIT C-81
Vibration Impacts
I-5 Alternative and Options
Federal Way Link Extension



LEGEND

I-5 Alternative

--- Elevated

--- At-Grade

... Trench

S Station

Options

--- Elevated

--- At-Grade

... Trench

S Station

--- City Boundary

--- Stream

--- Street

Waterbody

Park / Open Space

Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the I-5 Alternative impacts.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

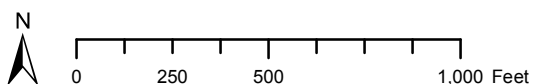
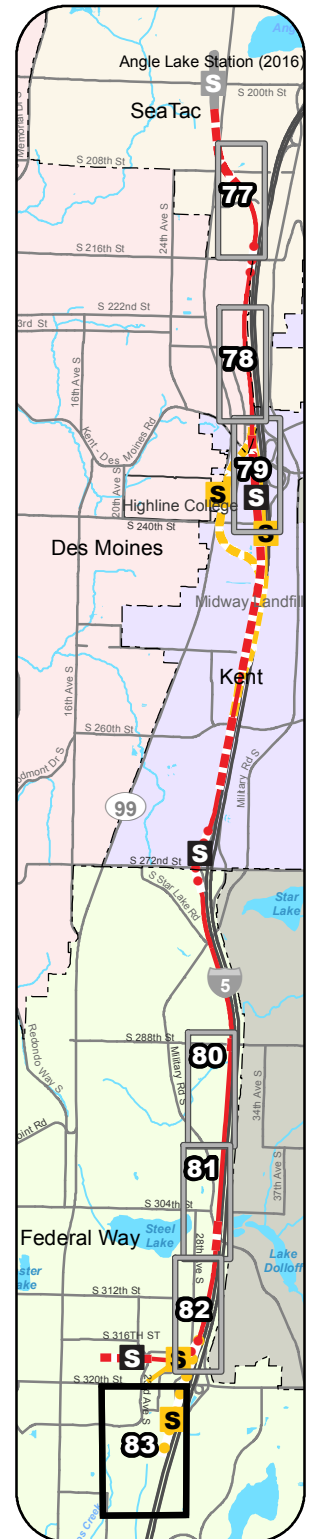
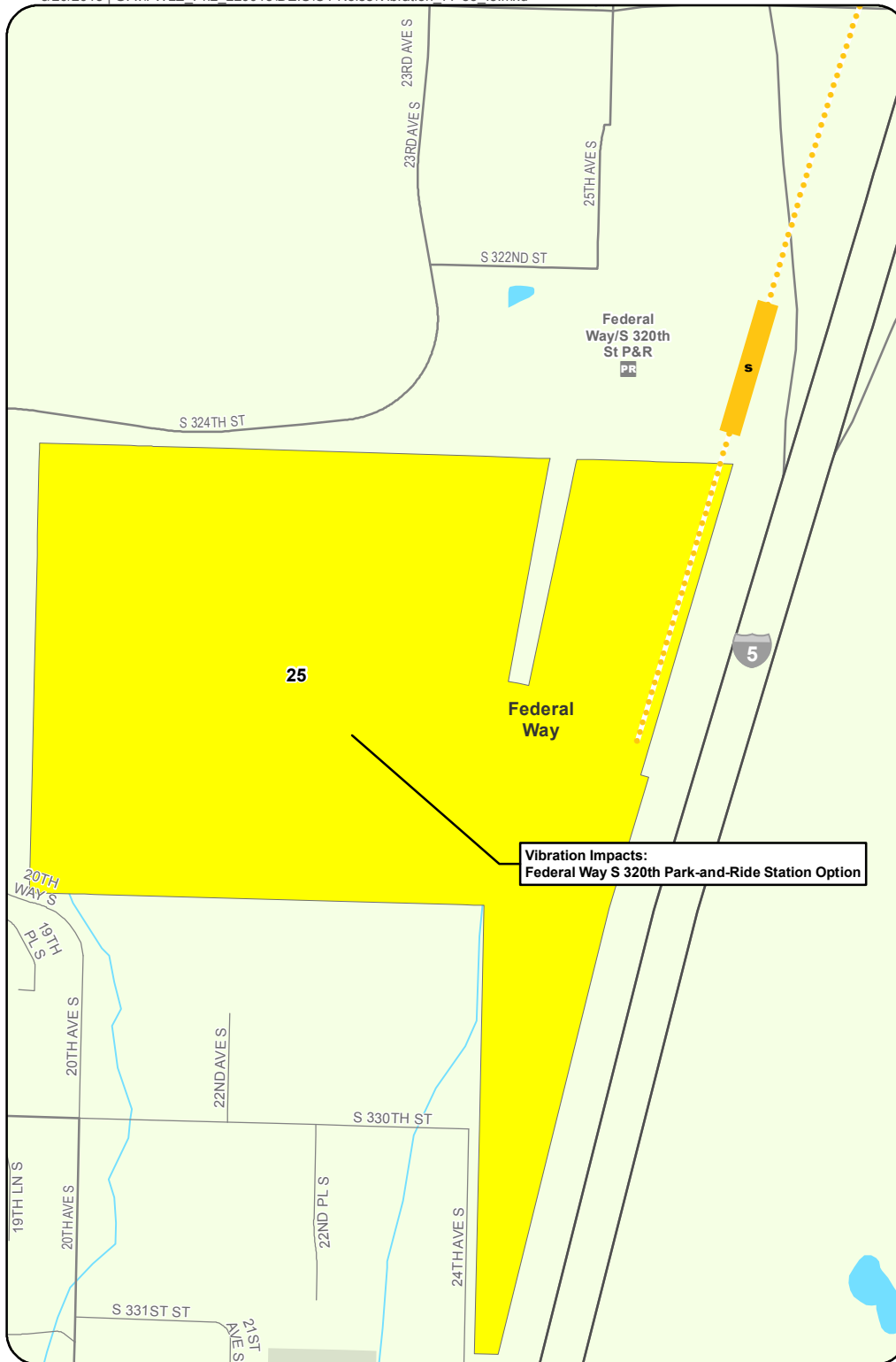


EXHIBIT C-82
Vibration Impacts
I-5 Alternative and Options
Federal Way Link Extension



LEGEND

I-5 Alternative

- Elevated
- At-Grade
- ... Trench
- [S] Station

Options

- Elevated
- At-Grade
- ... Trench
- [S] Station

- City Boundary
- Stream
- Street
- Waterbody

- Park / Open Space
- Vibration Impact

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.
2. Impacts for the Options are not indicated unless they differ from the I-5 Alternative impacts.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

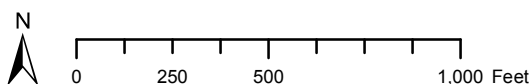
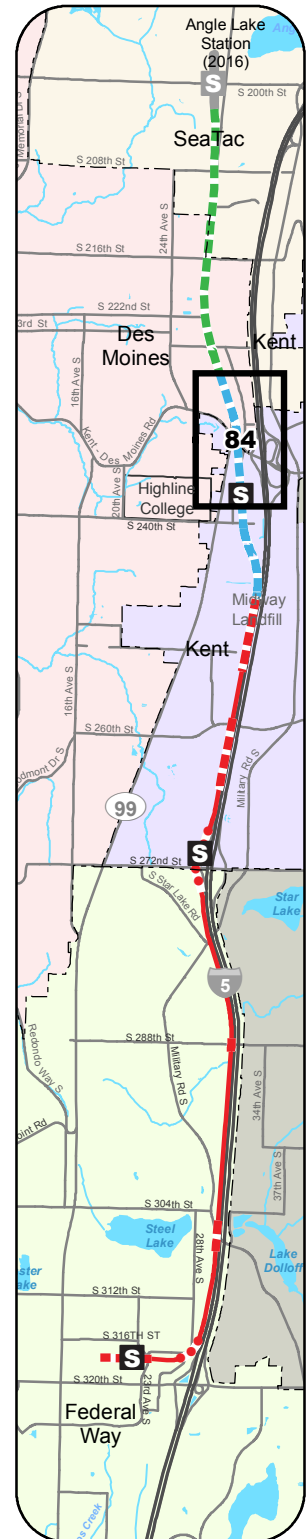


EXHIBIT C-83
Vibration Impacts
I-5 Alternative and Options
Federal Way Link Extension



LEGEND

SR 99 to I-5 Alternative

--- City Boundary

--- Stream

--- Street

Waterbody

Crossover Point

Park / Open Space

Vibration Impact

Station

Notes:

1. Vibration impact is 1 unit per parcel unless otherwise noted.

2. Impacts for the SR 99 to I-5 Alternative are not indicated unless they differ from the SR 99 or I-5 Alternative impacts.

Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).



EXHIBIT C-84
Vibration Impacts
SR 99 to I-5 Alternative
Federal Way Link Extension

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