

SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY, CA

DRAFT APPENDIX B.1.2 – INUNDATION MAPS

Maps (Future Without Project (FWOP) and Future With Project (FWP))

JANUARY 2024

USACE TULSA DISTRICT | THE PORT OF SAN FRANCISCO



US Army Corps
of Engineers



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B.1.2 - Inundation Maps (Future Without Project (FWOP) and Future With Project (FWP))

B.1.2.1 – Future Without Project (FWOP) and Future With Project (FWP) Maps

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B.1.2.3 – Total Net Benefits Plan (TNBP) Maps

B.1.2.4 – Total Net Benefits Plan (TNBP) Decadal Maps

SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY, CA

APPENDIX B1.2.3 – TOTAL NET BENEFITS PLAN MAPS

JANUARY 2024

USACE TULSA DISTRICT | THE PORT OF SAN FRANCISCO



**US Army Corps
of Engineers**



Appendix B.1.2.3

San Francisco Waterfront Inundation Maps

Total Net Benefits Plan

Alternative Alignment Moves: First and Second



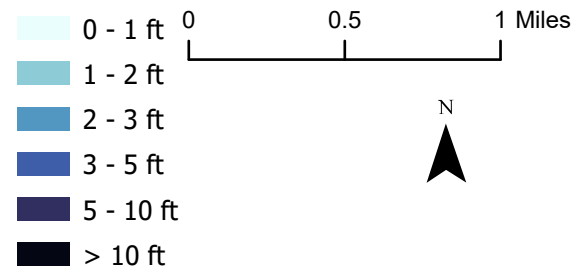
First Action

Monthly



First Action
 USACE Low Curve
 Time Horizon: 2040
 Monthly
 3.24 inches of SLC

— Line of Defense
 USACE Reaches

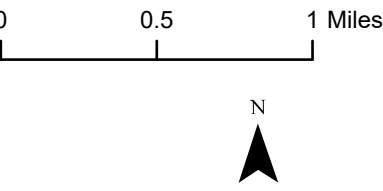




First Action
 USACE Low Curve
 Time Horizon: 2065
 Monthly
 5.17 inches of SLC

— Line of Defense
 USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 USACE Low Curve
 Time Horizon: 2090
 Monthly
 7.2 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2115
 Monthly
 9.13 inches of SLC

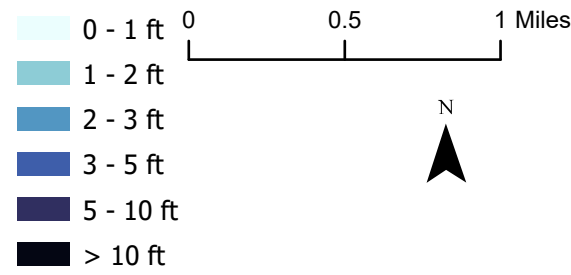
— Line of Defense
 USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2140
 Monthly
 11.16 inches of SLC

— Line of Defense
 USACE Reaches

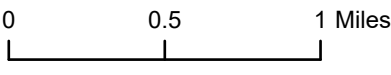




First Action
 USACE Intermediate Curve
 Time Horizon: 2040
 Monthly
 5.52 inches of SLC

— Line of Defense
 - - - USACE Reaches

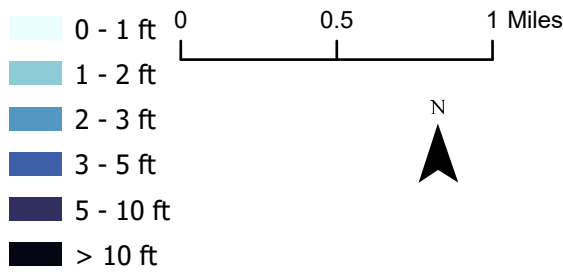
0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 USACE Intermediate Curve
 Time Horizon: 2065
 Monthly
 10.75 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2090
 Monthly
 17.28 inches of SLC

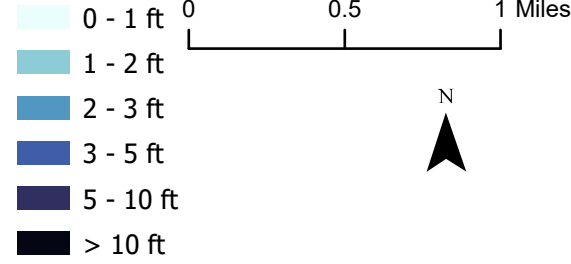
— Line of Defense
 USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2115
 Monthly
 25.15 inches of SLC

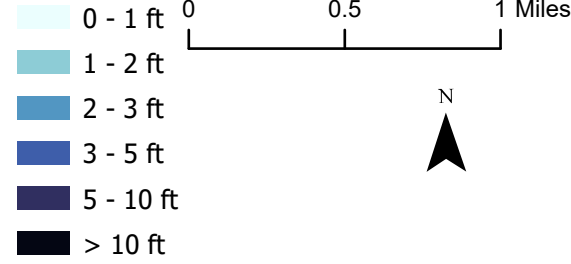
— Line of Defense
 USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2140
 Monthly
 34.32 inches of SLC

— Line of Defense
 - - - USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2040
 Monthly
 13.08 inches of SLC

— Line of Defense
 - - - USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2065
 Monthly
 28.51 inches of SLC

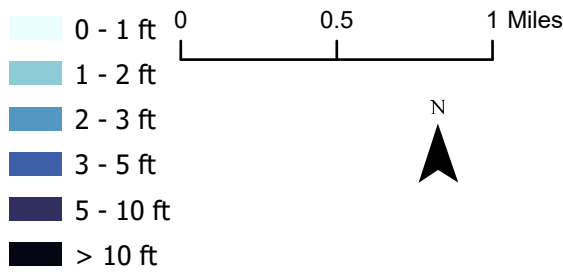
— Line of Defense
 - - - USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2090
 Monthly
 49.56 inches of SLC

— Line of Defense
 USACE Reaches

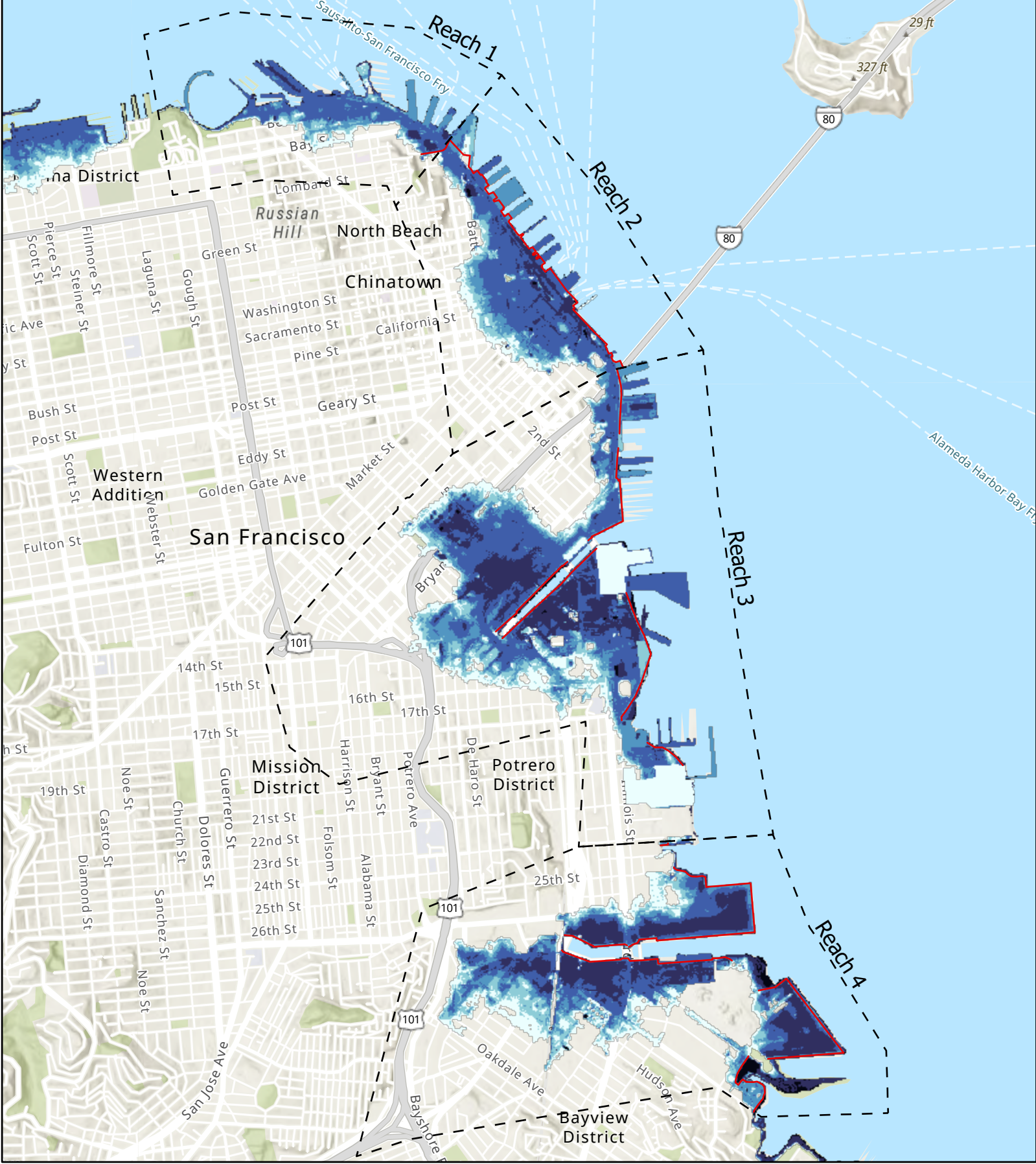




First Action
 USACE High Curve
 Time Horizon: 2115
 Monthly
 76.1 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2140
 Monthly
 108.24 inches of SLC

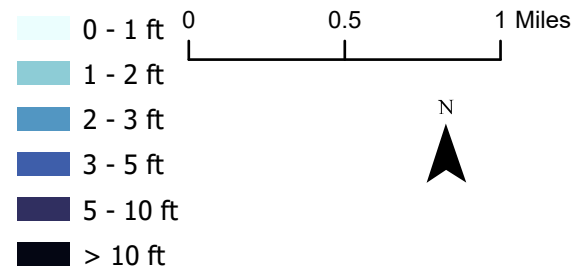
— Line of Defense
 USACE Reaches





First Action
 OPC Likely Curve
 Time Horizon: 2040
 Monthly
 9.6 inches of SLC

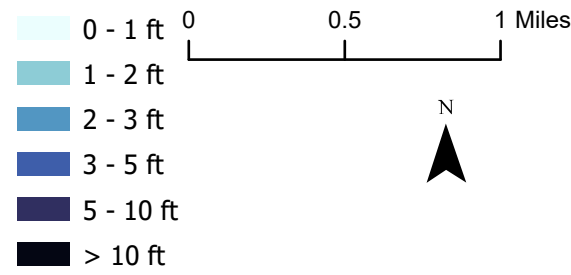
— Line of Defense
 USACE Reaches





First Action
 OPC Likely Curve
 Time Horizon: 2065
 Monthly
 21.24 inches of SLC

— Line of Defense
 USACE Reaches

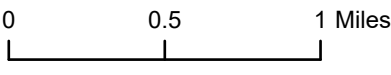




First Action
 OPC Likely Curve
 Time Horizon: 2090
 Monthly
 35.18 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 OPC Likely Curve
 Time Horizon: 2115
 Monthly
 49.3 inches of SLC

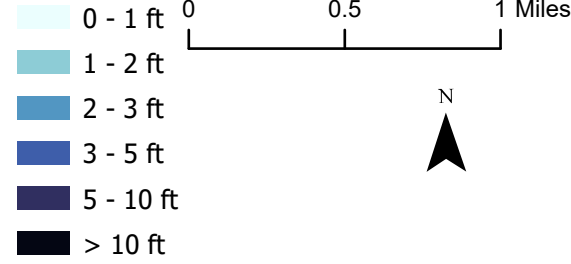
— Line of Defense
 - - - USACE Reaches





First Action
 OPC Likely Curve
 Time Horizon: 2140
 Monthly
 63.74 inches of SLC

— Line of Defense
 - - - USACE Reaches

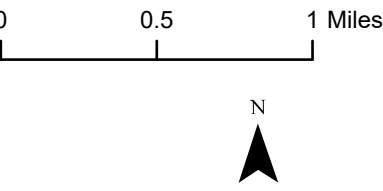




First Action
 OPC 1:200 Curve
 Time Horizon: 2040
 Monthly
 16.32 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 OPC 1:200 Curve
 Time Horizon: 2065
 Monthly
 39.21 inches of SLC

— Line of Defense
 - - - USACE Reaches

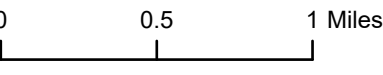


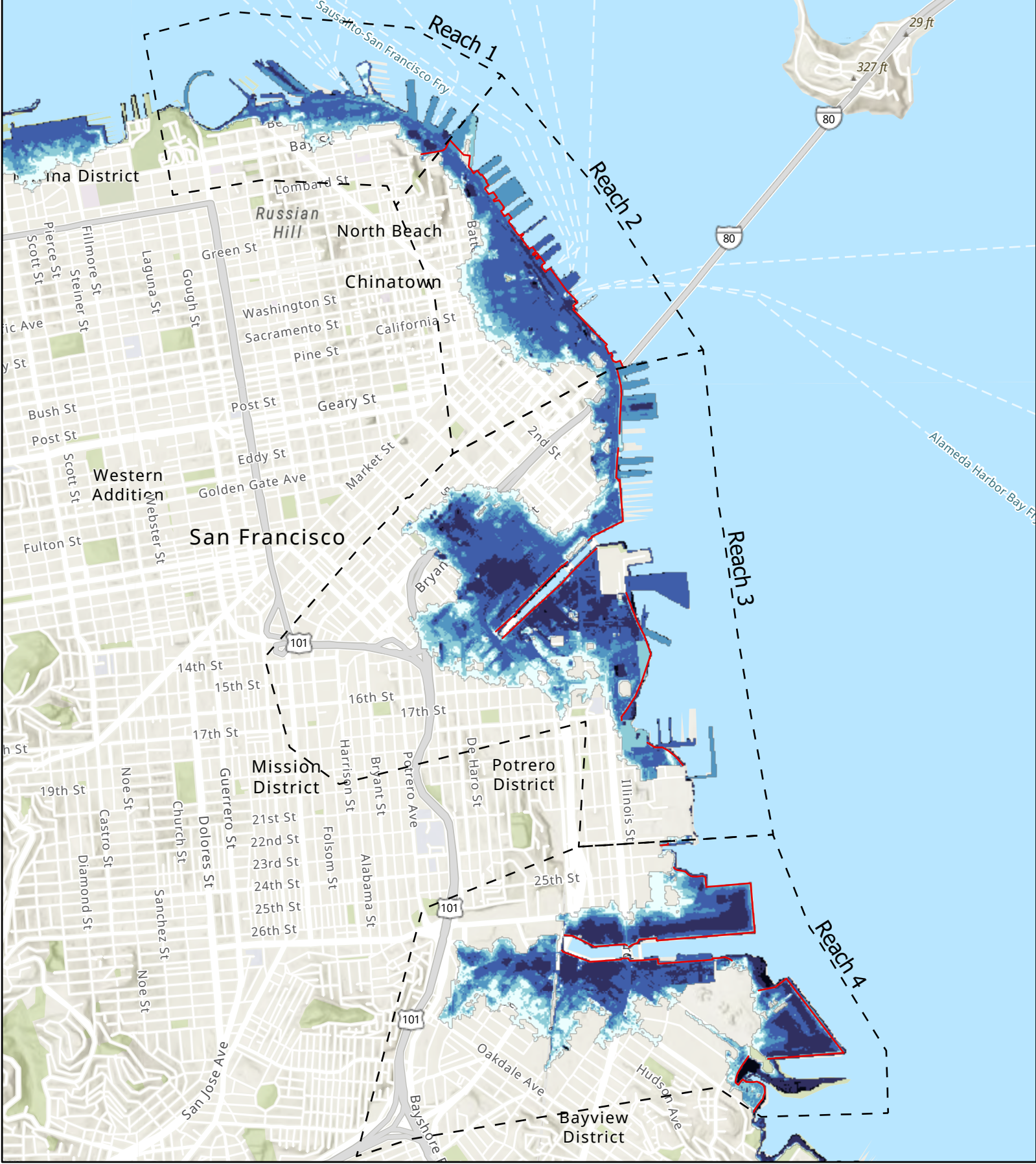


First Action
 OPC 1:200 Curve
 Time Horizon: 2090
 Monthly
 69.74 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft

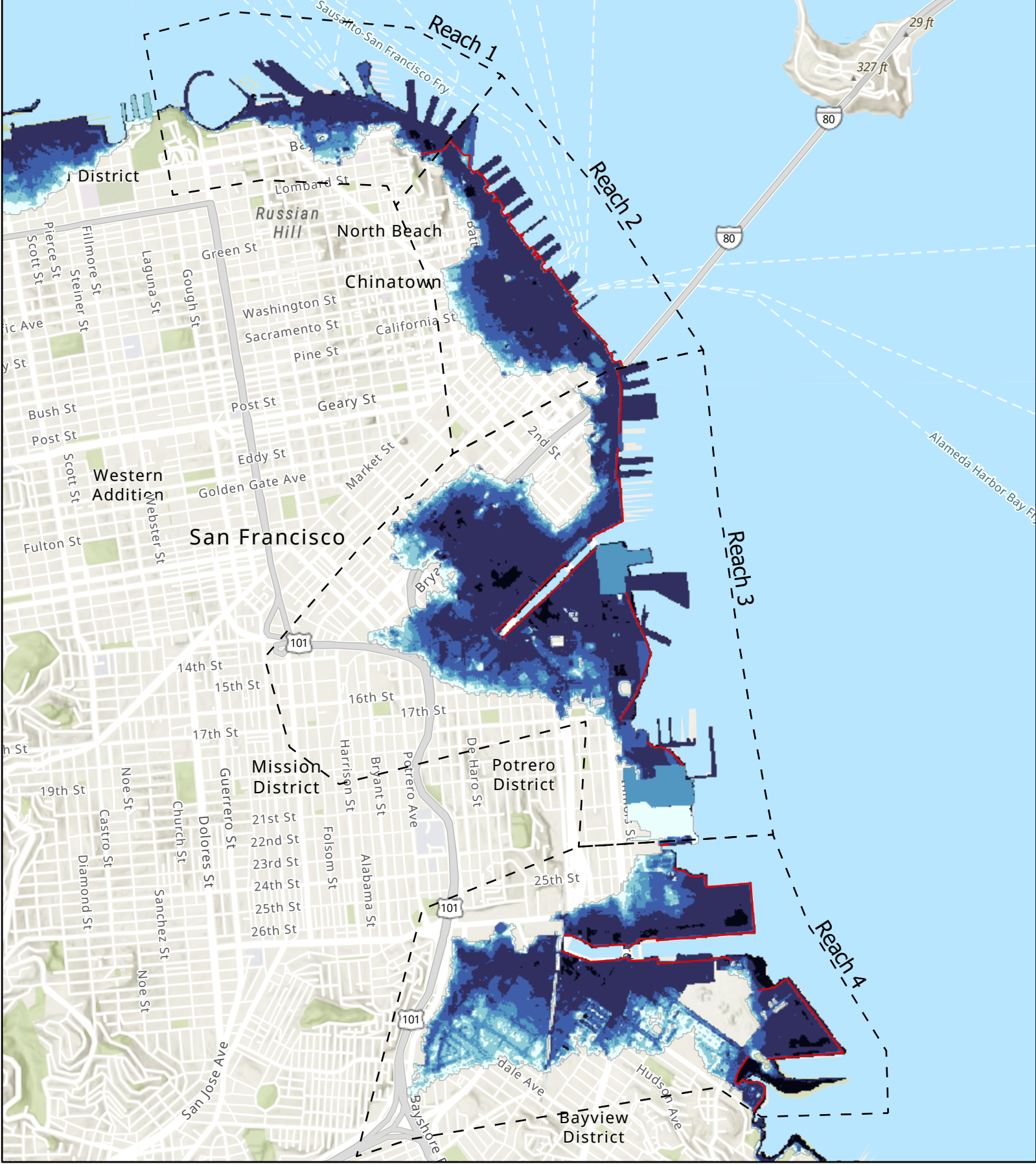




First Action
 OPC 1:200 Curve
 Time Horizon: 2115
 Monthly
 103.04 inches of SLC

— Line of Defense
 USACE Reaches

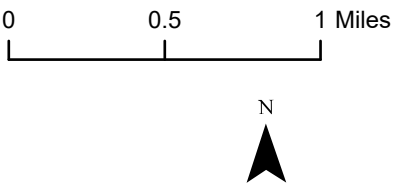




First Action
 OPC 1:200 Curve
 Time Horizon: 2140
 Monthly
 140.3 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft

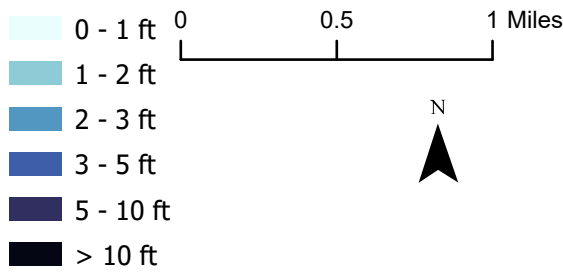


1% AEP



First Action
 USACE Low Curve
 Time Horizon: 2040
 1% AEP
 3.24 inches of SLC

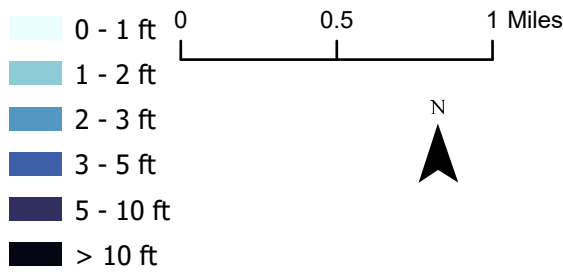
— Line of Defense
 USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2065
 1% AEP
 5.17 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2090
 1% AEP
 7.2 inches of SLC

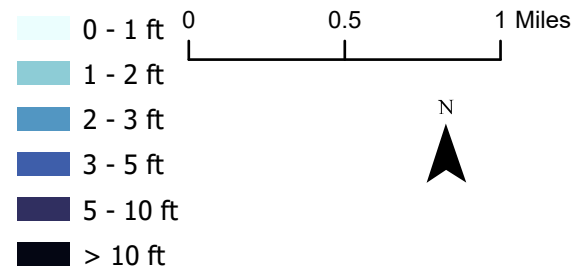
— Line of Defense
 - - - USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2115
 1% AEP
 9.13 inches of SLC

— Line of Defense
 - - - USACE Reaches





First Action
 USACE Low Curve
 Time Horizon: 2140
 1% AEP
 11.16 inches of SLC

— Line of Defense
 - - - USACE Reaches

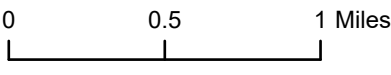




First Action
 USACE Intermediate Curve
 Time Horizon: 2040
 1% AEP
 5.52 inches of SLC

— Line of Defense
 - - - USACE Reaches

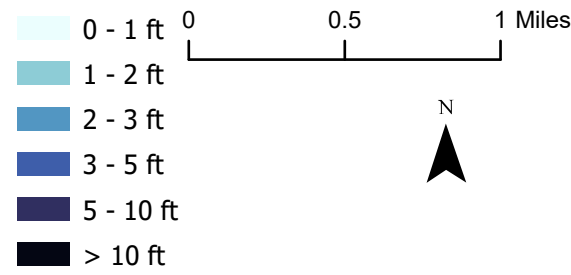
0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 USACE Intermediate Curve
 Time Horizon: 2065
 1% AEP
 10.75 inches of SLC

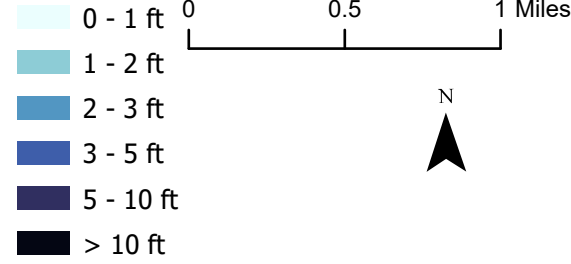
— Line of Defense
 - - - USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2090
 1% AEP
 17.28 inches of SLC

— Line of Defense
 - - - USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2115
 1% AEP
 25.15 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE Intermediate Curve
 Time Horizon: 2140
 1% AEP
 34.32 inches of SLC

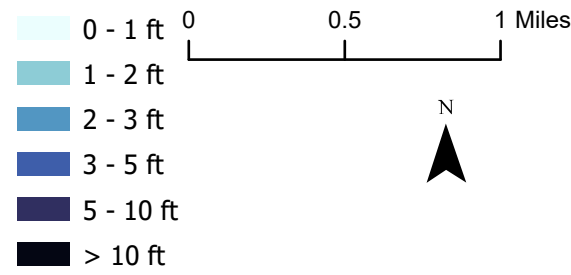
— Line of Defense
 - - - USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2040
 1% AEP
 13.08 inches of SLC

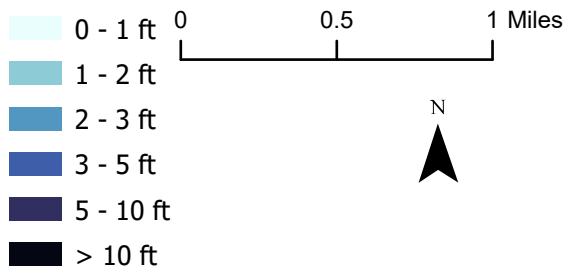
— Line of Defense
 - - - USACE Reaches

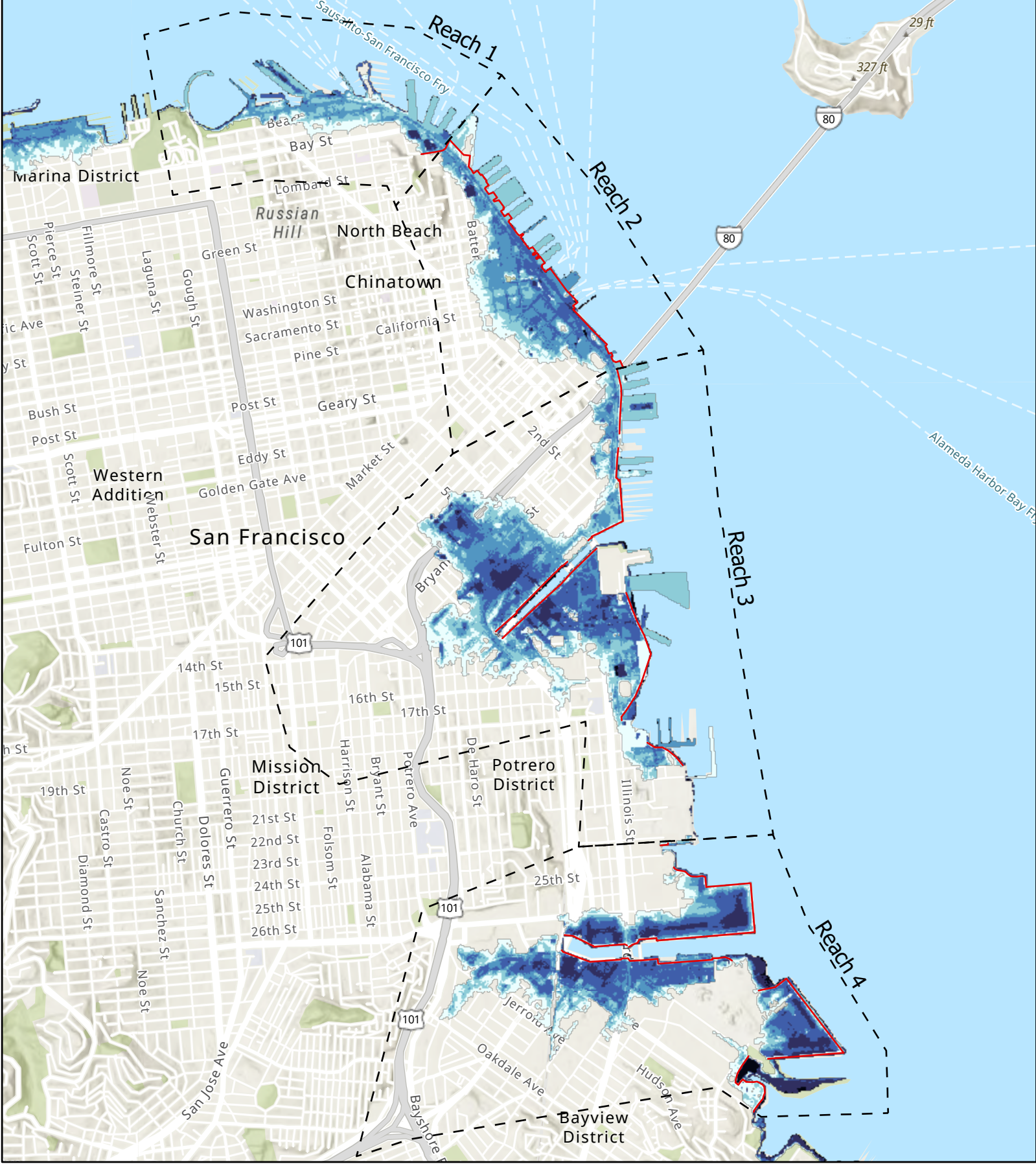




First Action
 USACE High Curve
 Time Horizon: 2065
 1% AEP
 28.51 inches of SLC

— Line of Defense
 USACE Reaches

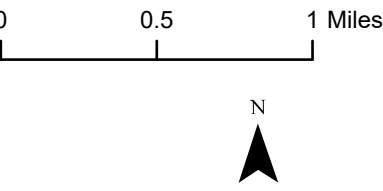


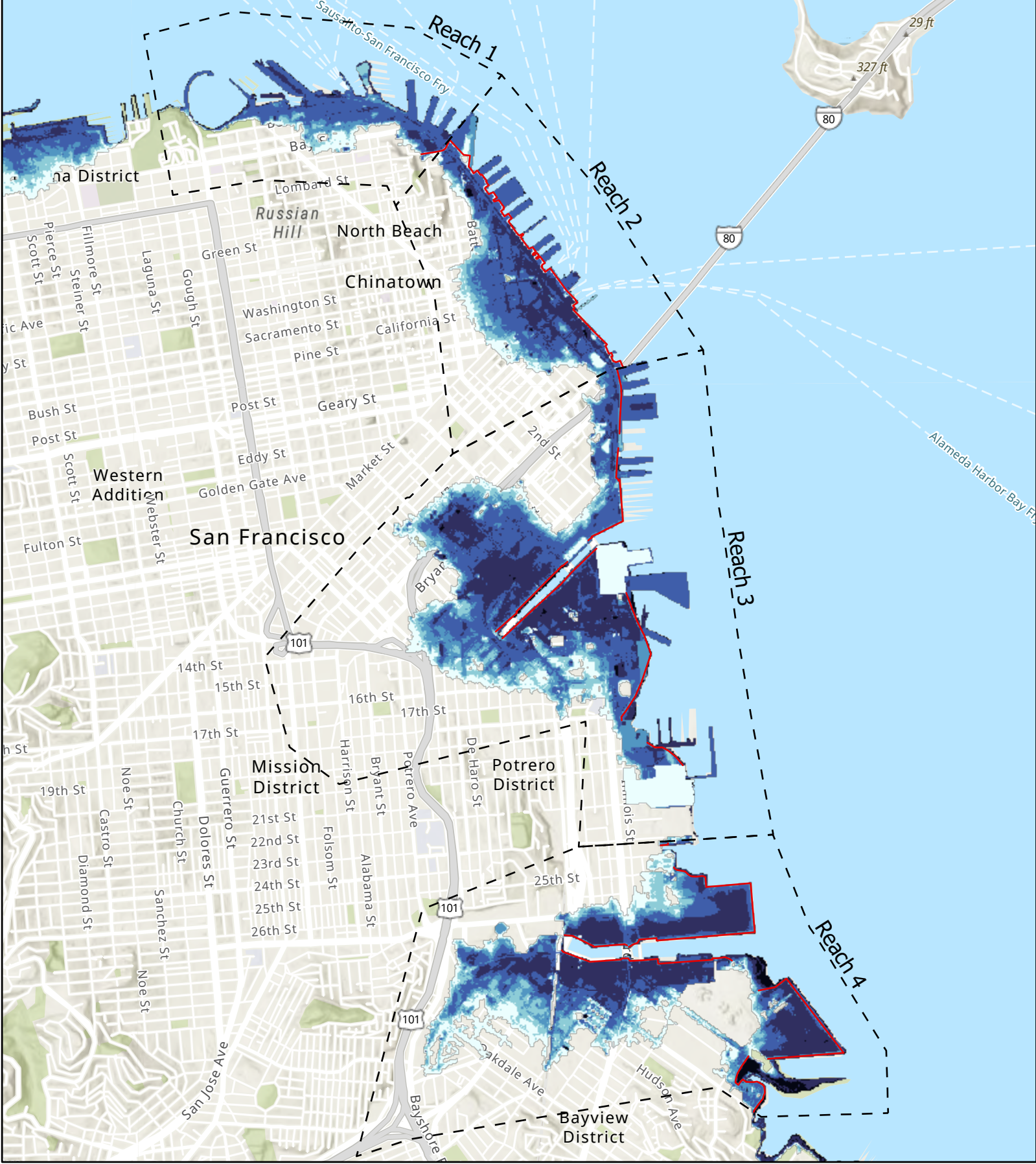


First Action
 USACE High Curve
 Time Horizon: 2090
 1% AEP
 49.56 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
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 3 - 5 ft
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 > 10 ft

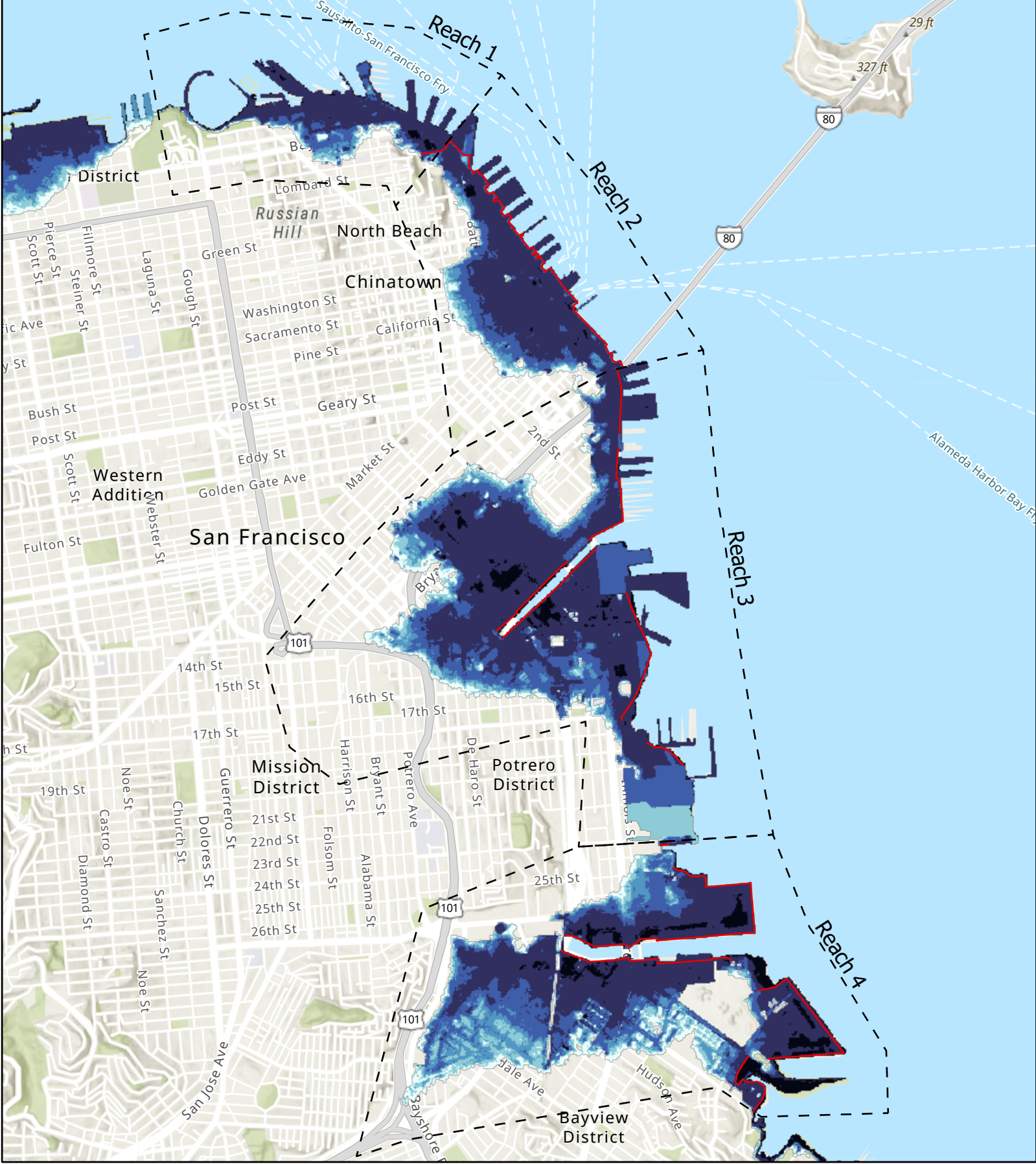




First Action
 USACE High Curve
 Time Horizon: 2115
 1% AEP
 76.1 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 USACE High Curve
 Time Horizon: 2140
 1% AEP
 108.24 inches of SLC

— Line of Defense
 - - - USACE Reaches

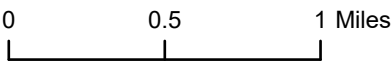




First Action
 OPC Likely Curve
 Time Horizon: 2040
 1% AEP
 9.6 inches of SLC

— Line of Defense
 - - - USACE Reaches

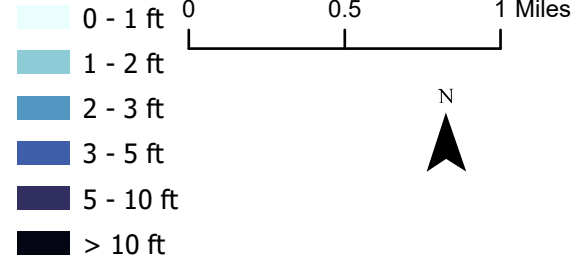
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 5 - 10 ft
 > 10 ft





First Action
 OPC Likely Curve
 Time Horizon: 2065
 1% AEP
 21.24 inches of SLC

— Line of Defense
 - - - USACE Reaches

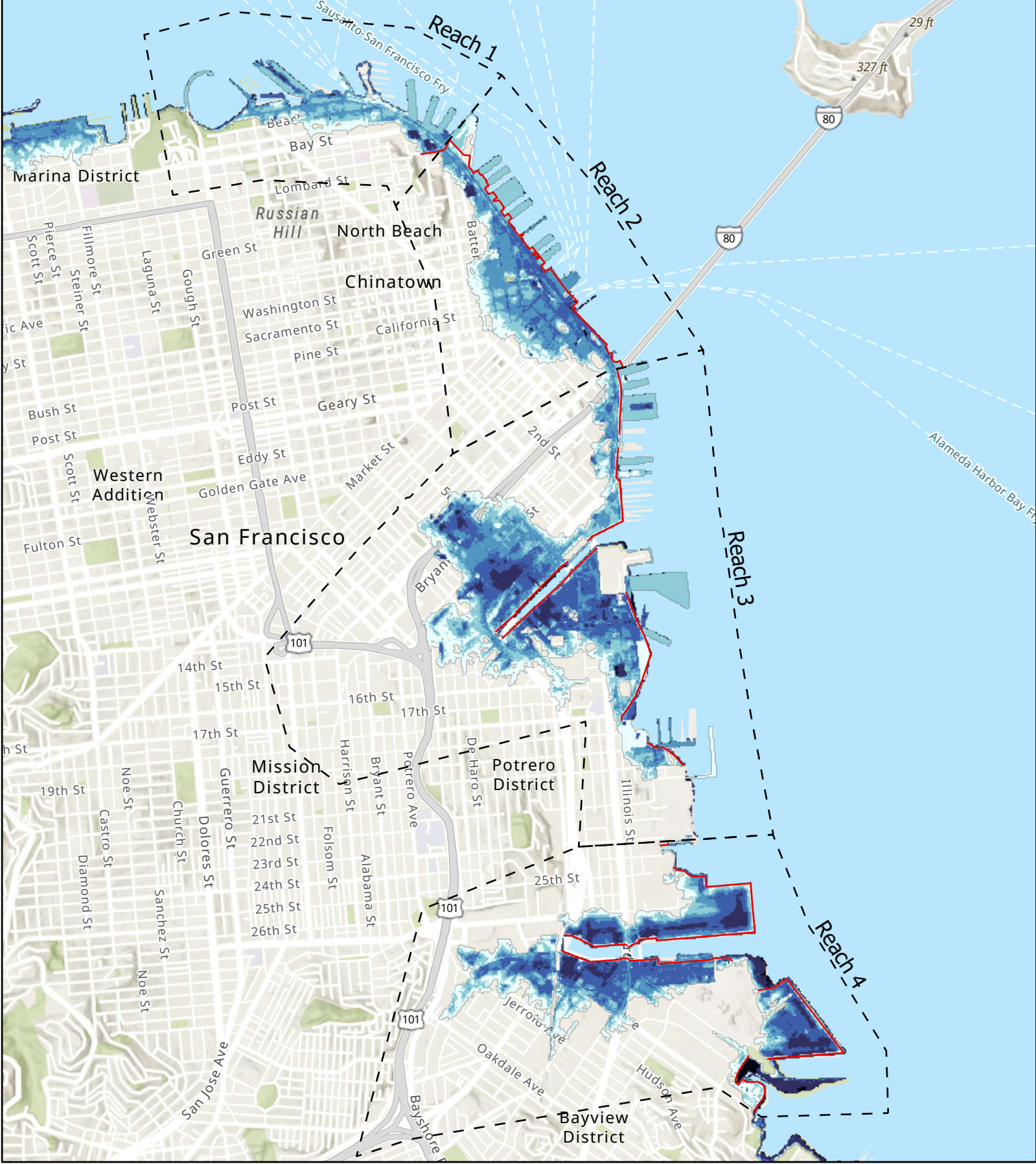




First Action
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 Time Horizon: 2090
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— Line of Defense
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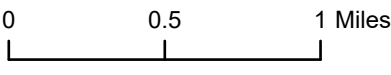


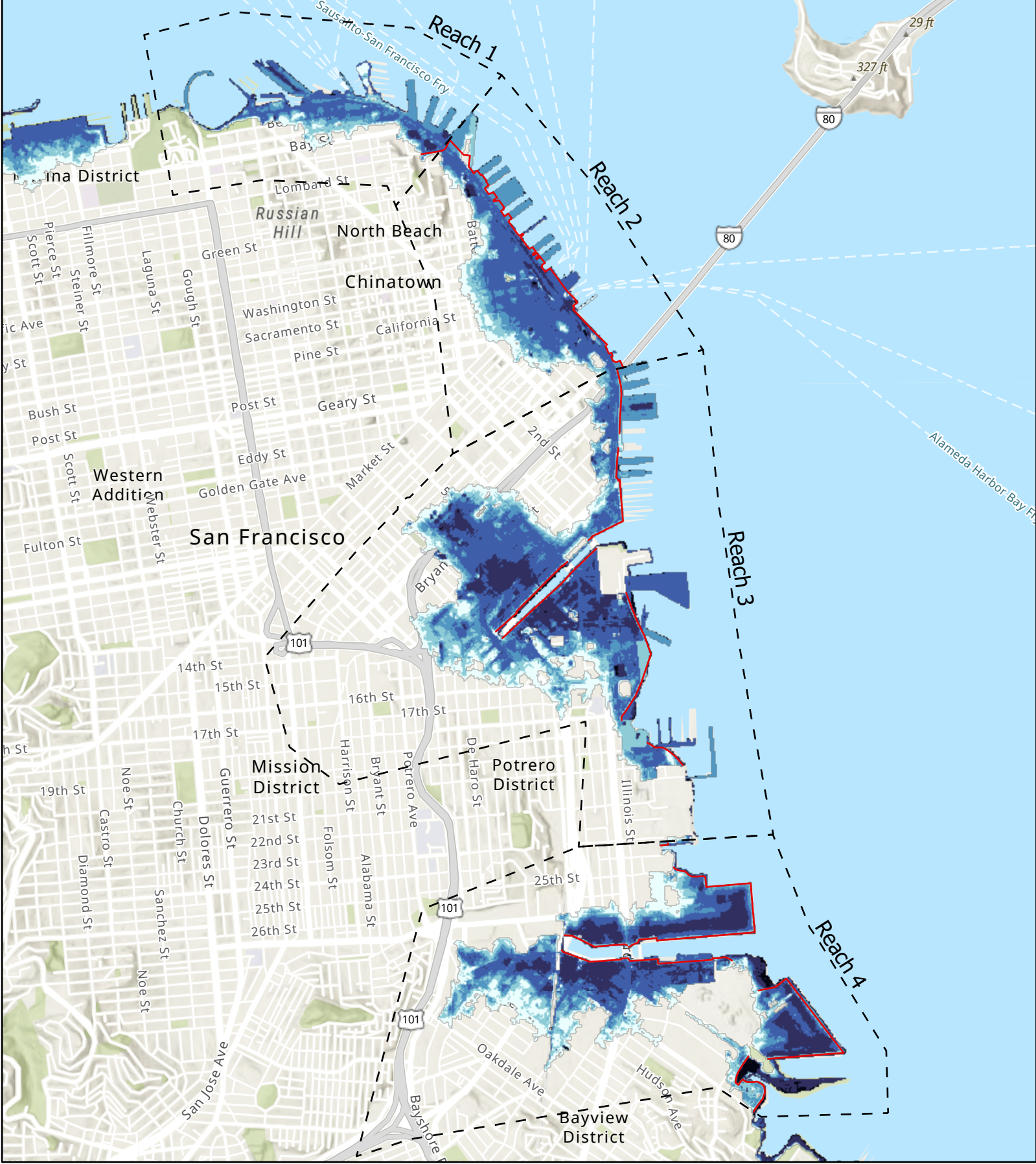


First Action
 OPC Likely Curve
 Time Horizon: 2115
 1% AEP
 49.3 inches of SLC

— Line of Defense
 - - - USACE Reaches

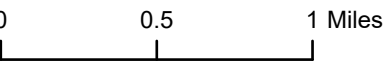
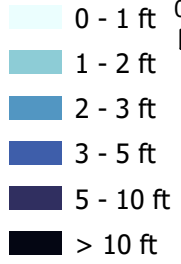
0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





First Action
 OPC Likely Curve
 Time Horizon: 2140
 1% AEP
 63.74 inches of SLC

— Line of Defense
 USACE Reaches





First Action
 OPC 1:200 Curve
 Time Horizon: 2040
 1% AEP
 16.32 inches of SLC

— Line of Defense
 USACE Reaches

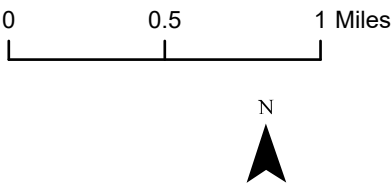


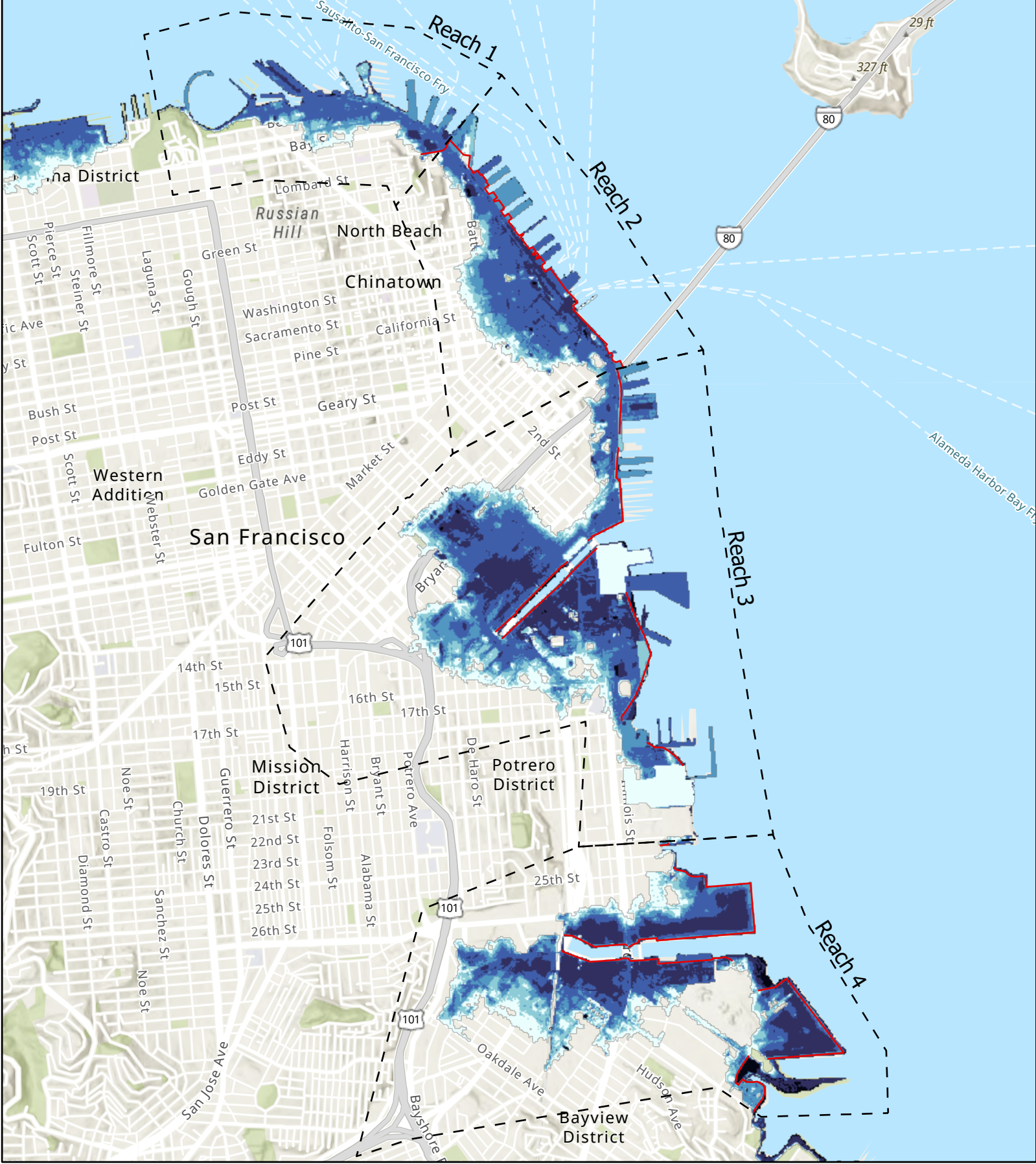


First Action
 OPC 1:200 Curve
 Time Horizon: 2065
 1% AEP
 39.21 inches of SLC

— Line of Defense
 - - - USACE Reaches

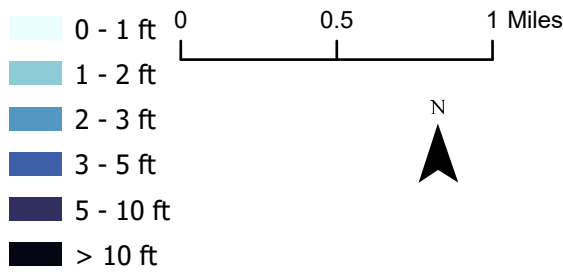
0 - 1 ft
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 5 - 10 ft
 > 10 ft

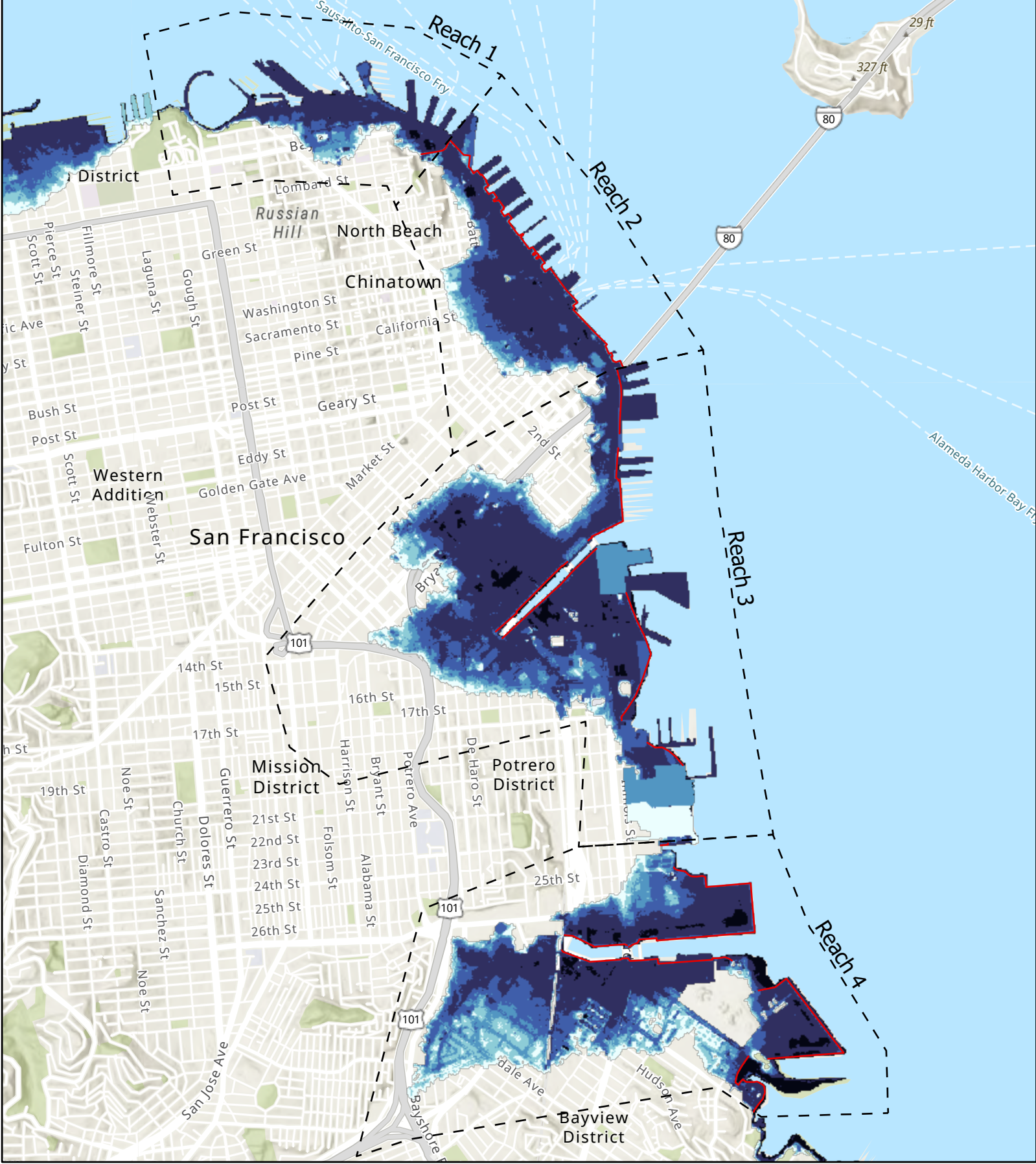




First Action
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 1% AEP
 69.74 inches of SLC

— Line of Defense
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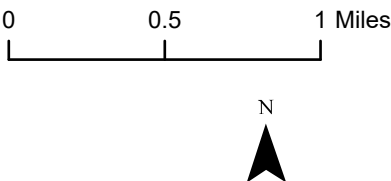


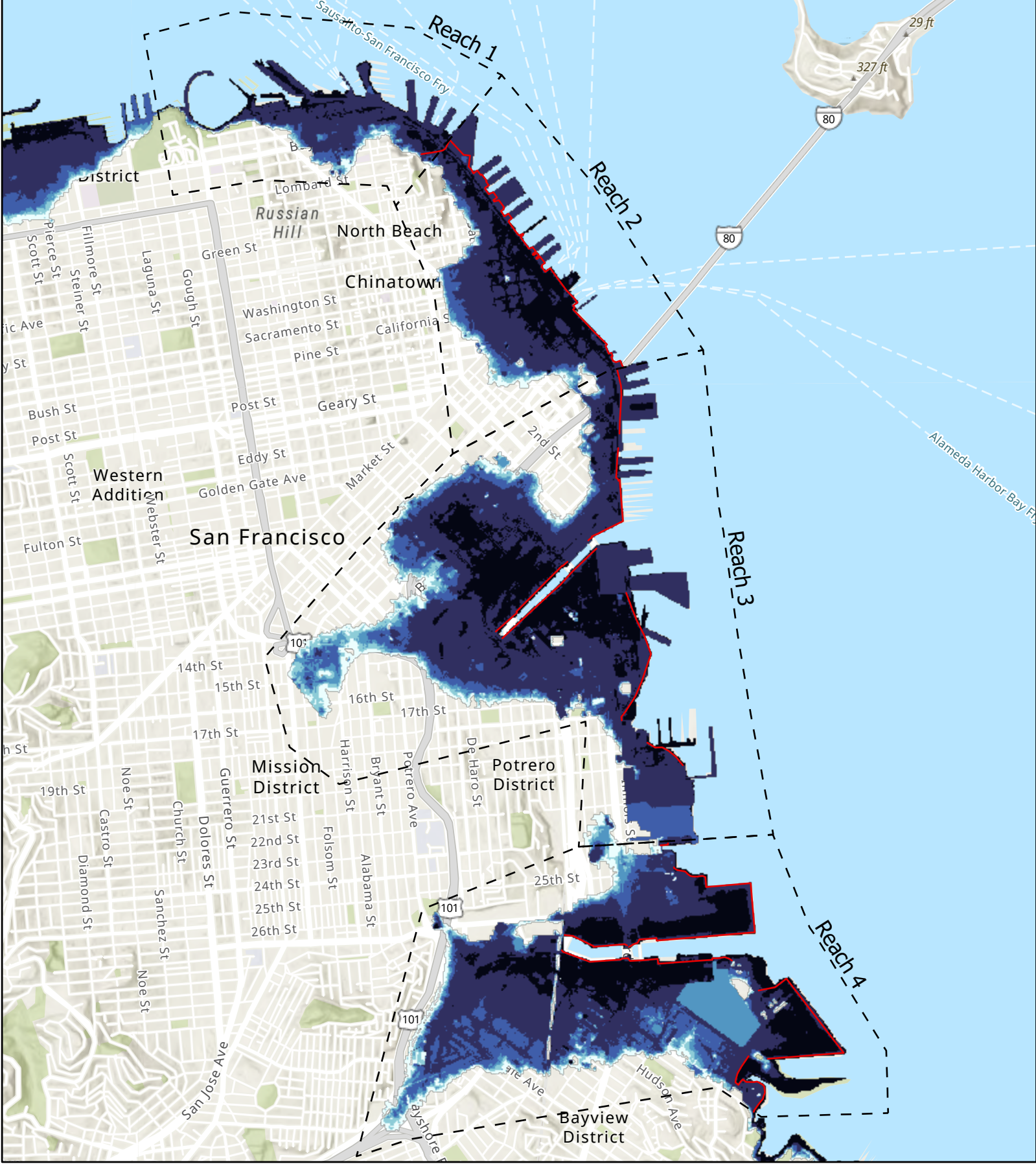


First Action
 OPC 1:200 Curve
 Time Horizon: 2115
 1% AEP
 103.04 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft

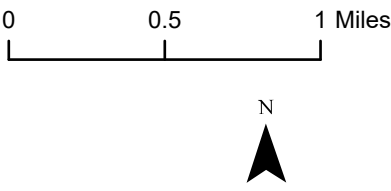




First Action
 OPC 1:200 Curve
 Time Horizon: 2140
 1% AEP
 140.3 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft



Second Action

Monthly



Second Action
 USACE Low Curve
 Time Horizon: 2040
 Monthly
 3.24 inches of SLC

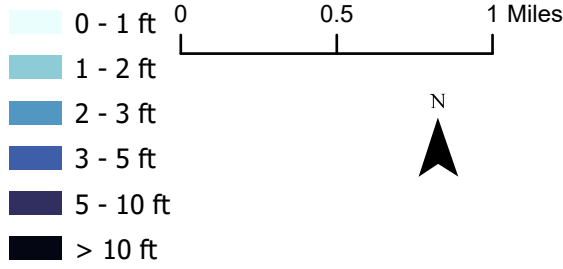
— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2065
 Monthly
 5.17 inches of SLC

— Line of Defense
 USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2090
 Monthly
 7.2 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2115
 Monthly
 9.13 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2140
 Monthly
 11.16 inches of SLC

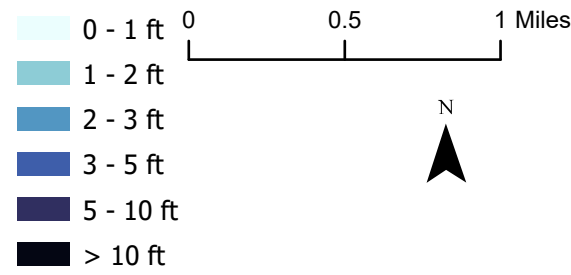
— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2040
 Monthly
 5.52 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2065
 Monthly
 10.75 inches of SLC

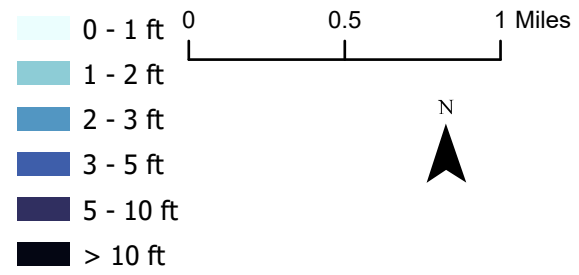
— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2090
 Monthly
 17.28 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2115
 Monthly
 25.15 inches of SLC

— Line of Defense
 - - - USACE Reaches

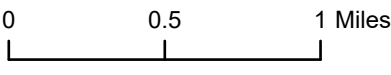




Second Action
 USACE Intermediate Curve
 Time Horizon: 2140
 Monthly
 34.32 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





Second Action
 USACE High Curve
 Time Horizon: 2040
 Monthly
 13.08 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE High Curve
 Time Horizon: 2065
 Monthly
 28.51 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE High Curve
 Time Horizon: 2090
 Monthly
 49.56 inches of SLC

— Line of Defense
 - - - USACE Reaches

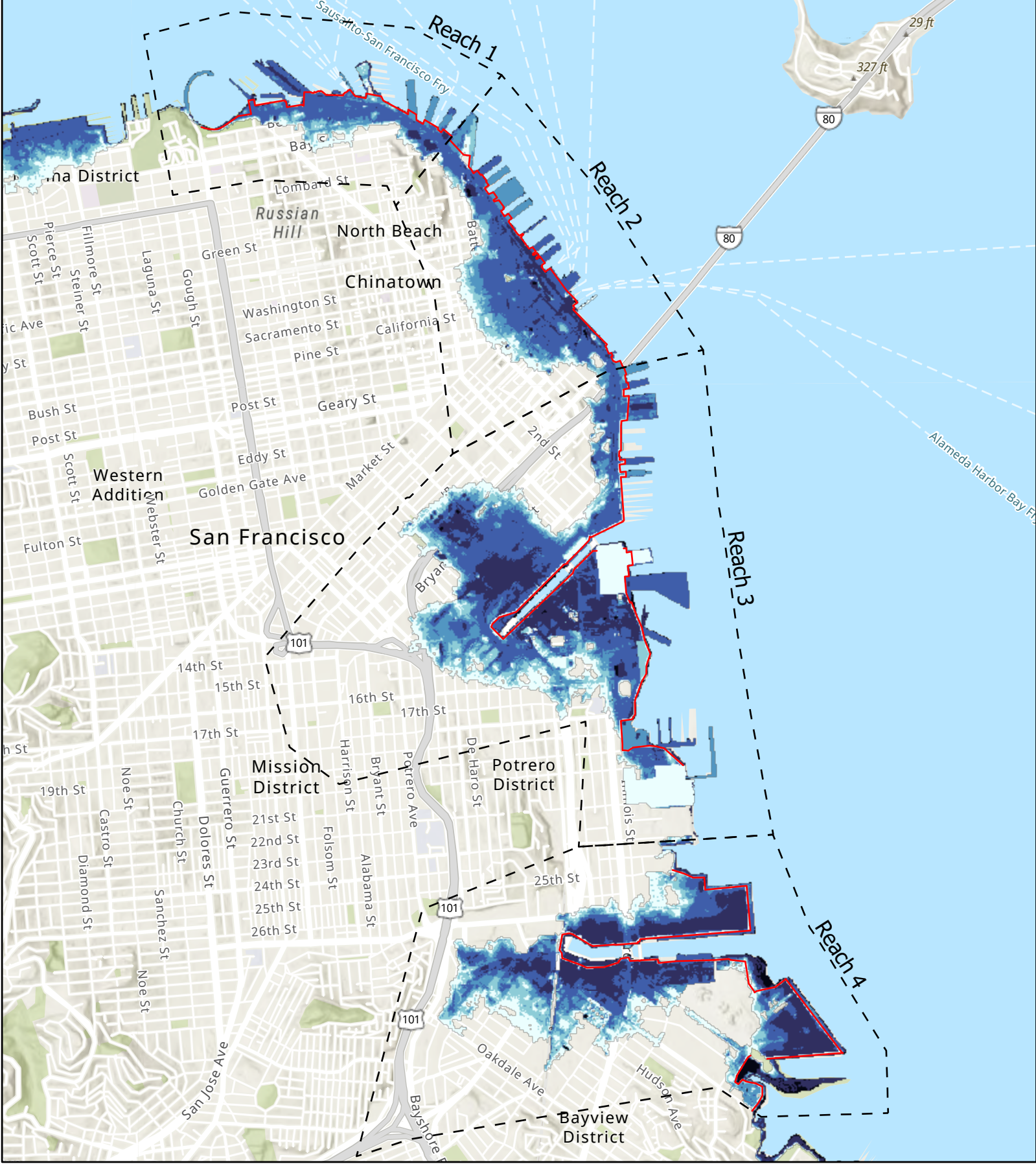




Second Action
 USACE High Curve
 Time Horizon: 2115
 Monthly
 76.1 inches of SLC

— Line of Defense
 - - - USACE Reaches

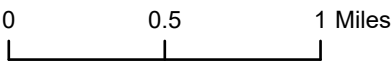




Second Action
 USACE High Curve
 Time Horizon: 2140
 Monthly
 108.24 inches of SLC

— Line of Defense
 - - - USACE Reaches

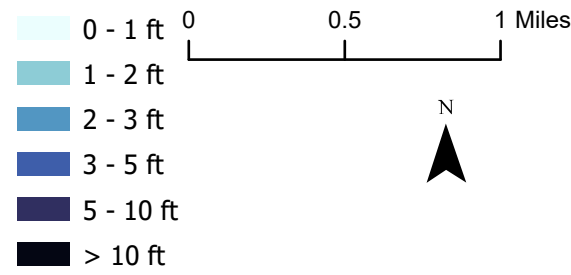
0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





Second Action
 OPC Likely Curve
 Time Horizon: 2040
 Monthly
 9.6 inches of SLC

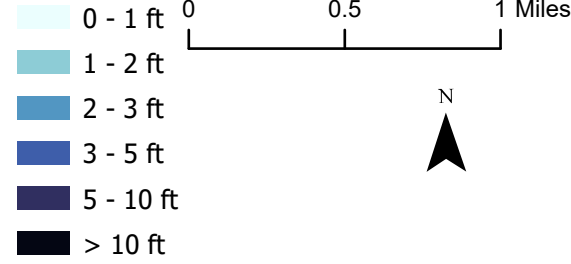
— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2065
 Monthly
 21.24 inches of SLC

— Line of Defense
 - - - USACE Reaches

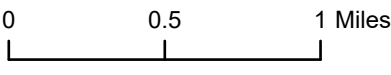




Second Action
 OPC Likely Curve
 Time Horizon: 2090
 Monthly
 35.18 inches of SLC

— Line of Defense
 - - - USACE Reaches

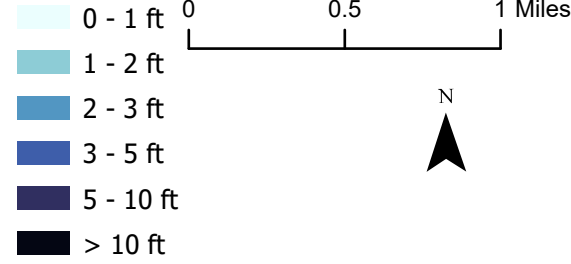
0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





Second Action
 OPC Likely Curve
 Time Horizon: 2115
 Monthly
 49.3 inches of SLC

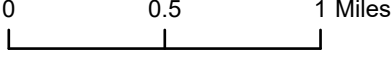
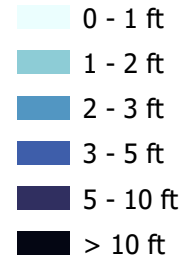
— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2140
 Monthly
 63.74 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC 1:200 Curve
 Time Horizon: 2040
 Monthly
 16.32 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC 1:200 Curve
 Time Horizon: 2065
 Monthly
 39.21 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC 1:200 Curve
 Time Horizon: 2090
 Monthly
 69.74 inches of SLC

— Line of Defense
 - - - USACE Reaches

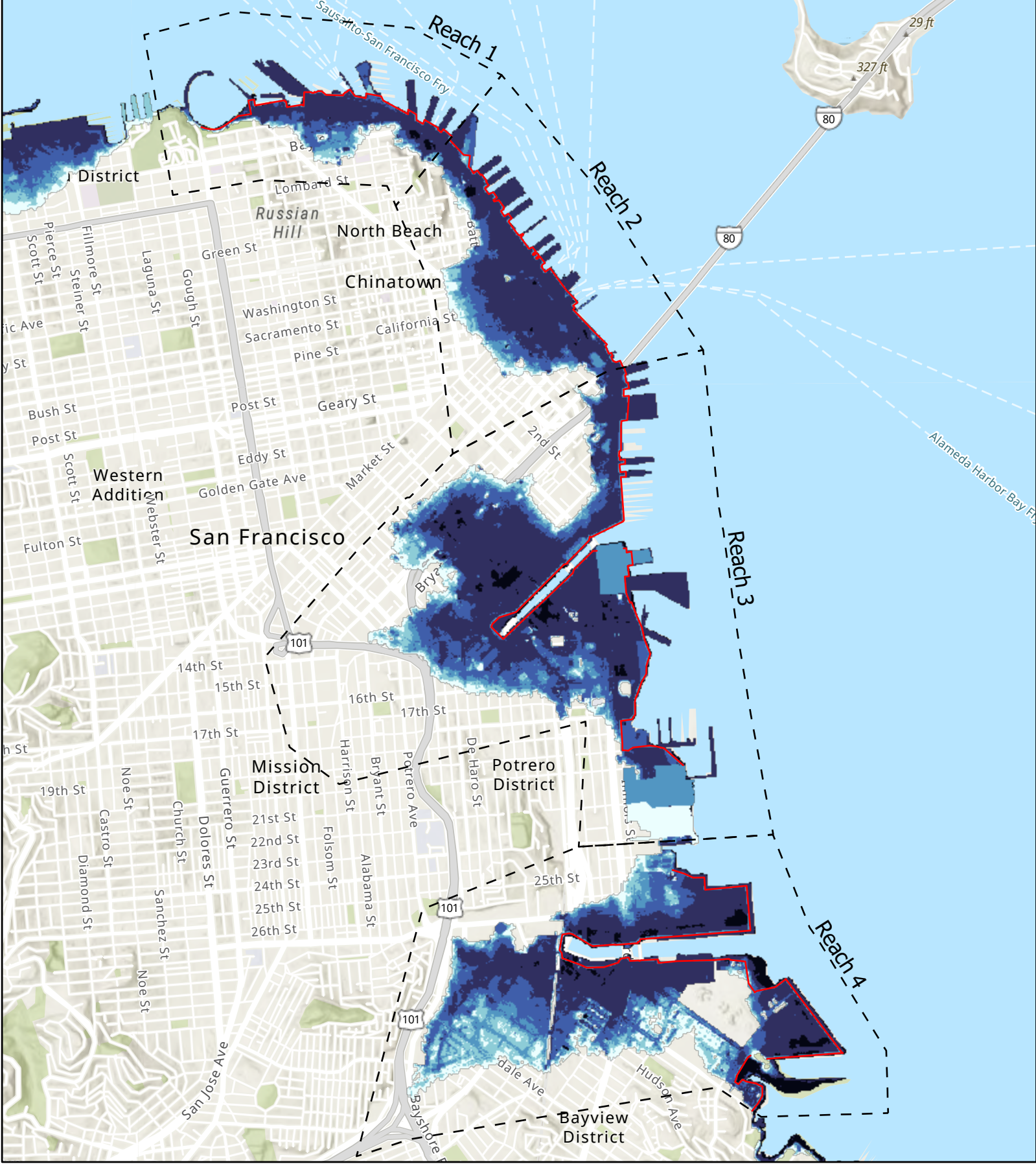




Second Action
 OPC 1:200 Curve
 Time Horizon: 2115
 Monthly
 103.04 inches of SLC

— Line of Defense
 - - - USACE Reaches

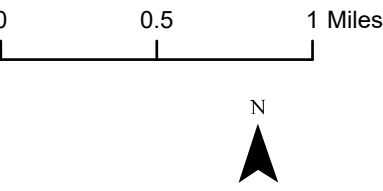




Second Action
 OPC 1:200 Curve
 Time Horizon: 2140
 Monthly
 140.3 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft



1% AEP



Second Action
 USACE Low Curve
 Time Horizon: 2040
 1% AEP
 3.24 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2065
 1% AEP
 5.17 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2090
 1% AEP
 7.2 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2115
 1% AEP
 9.13 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Low Curve
 Time Horizon: 2140
 1% AEP
 11.16 inches of SLC

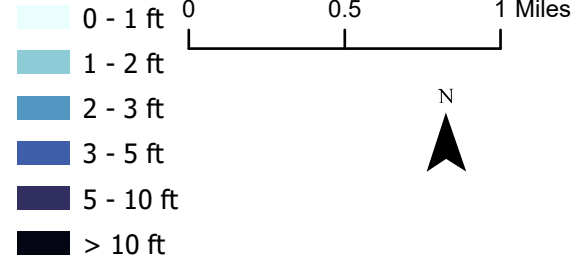
— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2040
 1% AEP
 5.52 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2065
 1% AEP
 10.75 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2090
 1% AEP
 17.28 inches of SLC

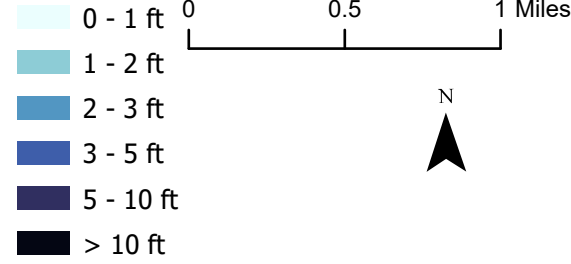
— Line of Defense
 - - - USACE Reaches





Second Action
 USACE Intermediate Curve
 Time Horizon: 2115
 1% AEP
 25.15 inches of SLC

— Line of Defense
 - - - USACE Reaches

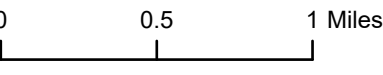




Second Action
 USACE Intermediate Curve
 Time Horizon: 2140
 1% AEP
 34.32 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





Second Action
 USACE High Curve
 Time Horizon: 2040
 1% AEP
 13.08 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE High Curve
 Time Horizon: 2065
 1% AEP
 28.51 inches of SLC

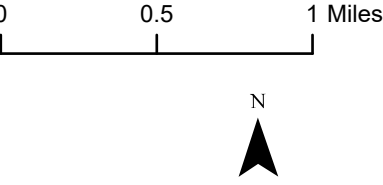
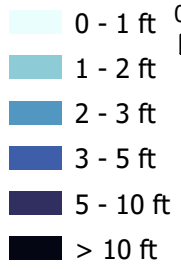
— Line of Defense
 - - - USACE Reaches

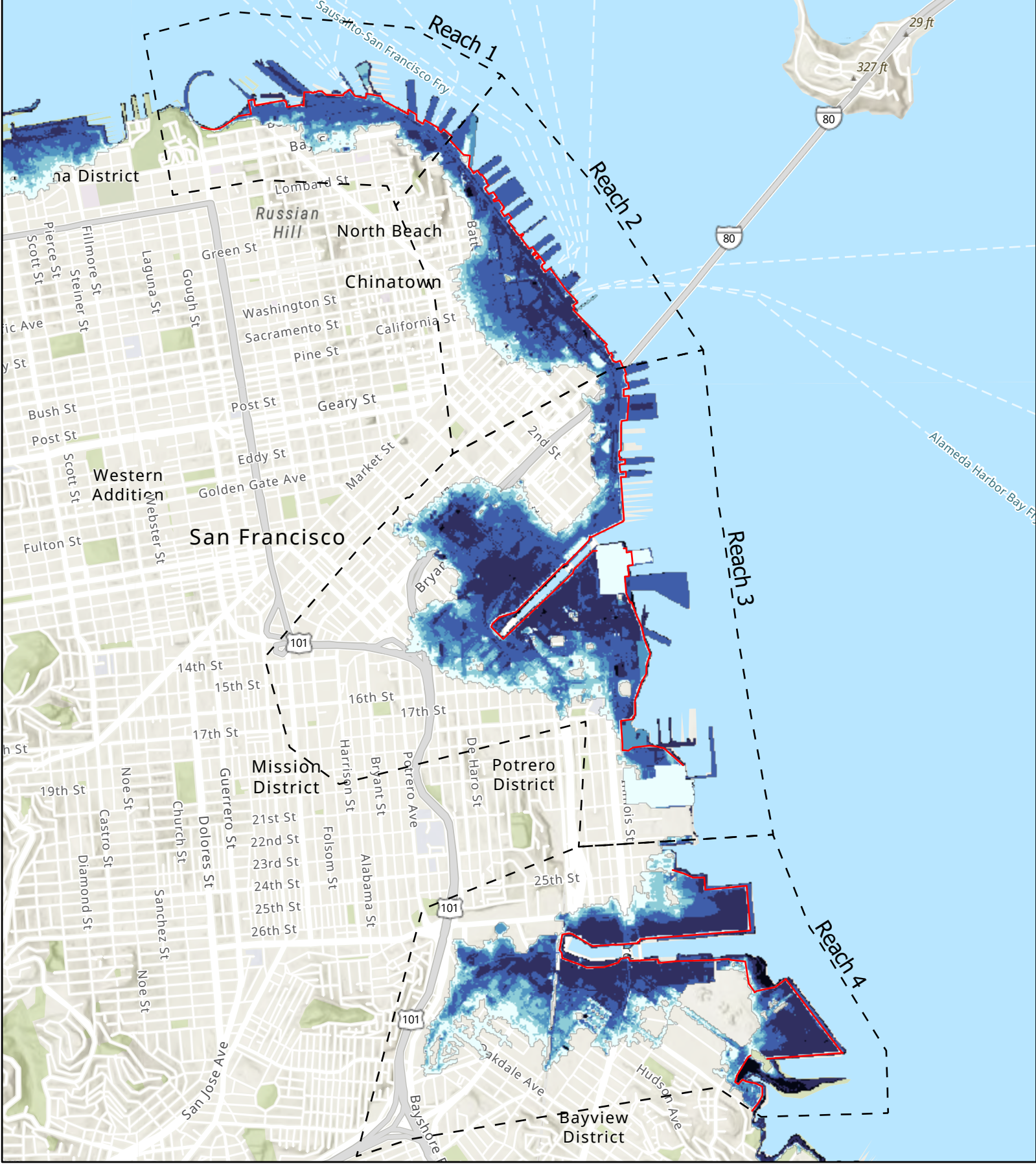




Second Action
 USACE High Curve
 Time Horizon: 2090
 1% AEP
 49.56 inches of SLC

— Line of Defense
 - - - USACE Reaches

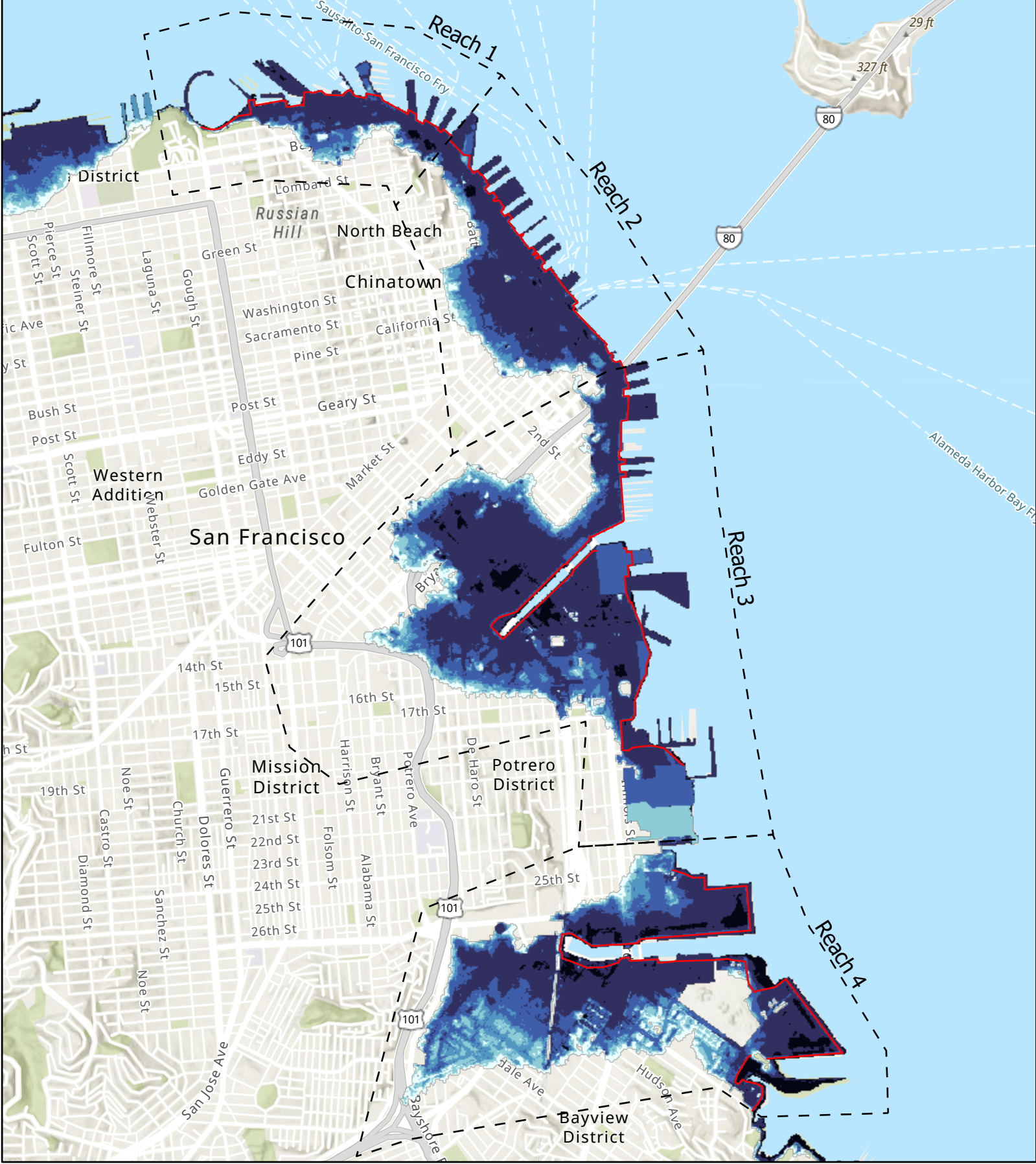




Second Action
 USACE High Curve
 Time Horizon: 2115
 1% AEP
 76.1 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 USACE High Curve
 Time Horizon: 2140
 1% AEP
 108.24 inches of SLC

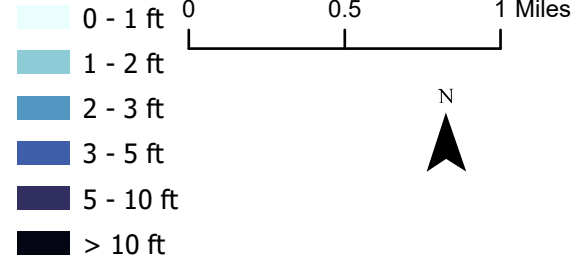
— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2040
 1% AEP
 9.6 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2065
 1% AEP
 21.24 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2090
 1% AEP
 35.18 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2115
 1% AEP
 49.3 inches of SLC

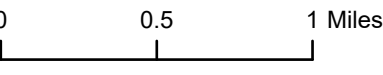
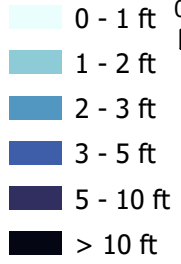
— Line of Defense
 - - - USACE Reaches





Second Action
 OPC Likely Curve
 Time Horizon: 2140
 1% AEP
 63.74 inches of SLC

— Line of Defense
 - - - USACE Reaches





Second Action
 OPC 1:200 Curve
 Time Horizon: 2040
 1% AEP
 16.32 inches of SLC

— Line of Defense
 - - - USACE Reaches

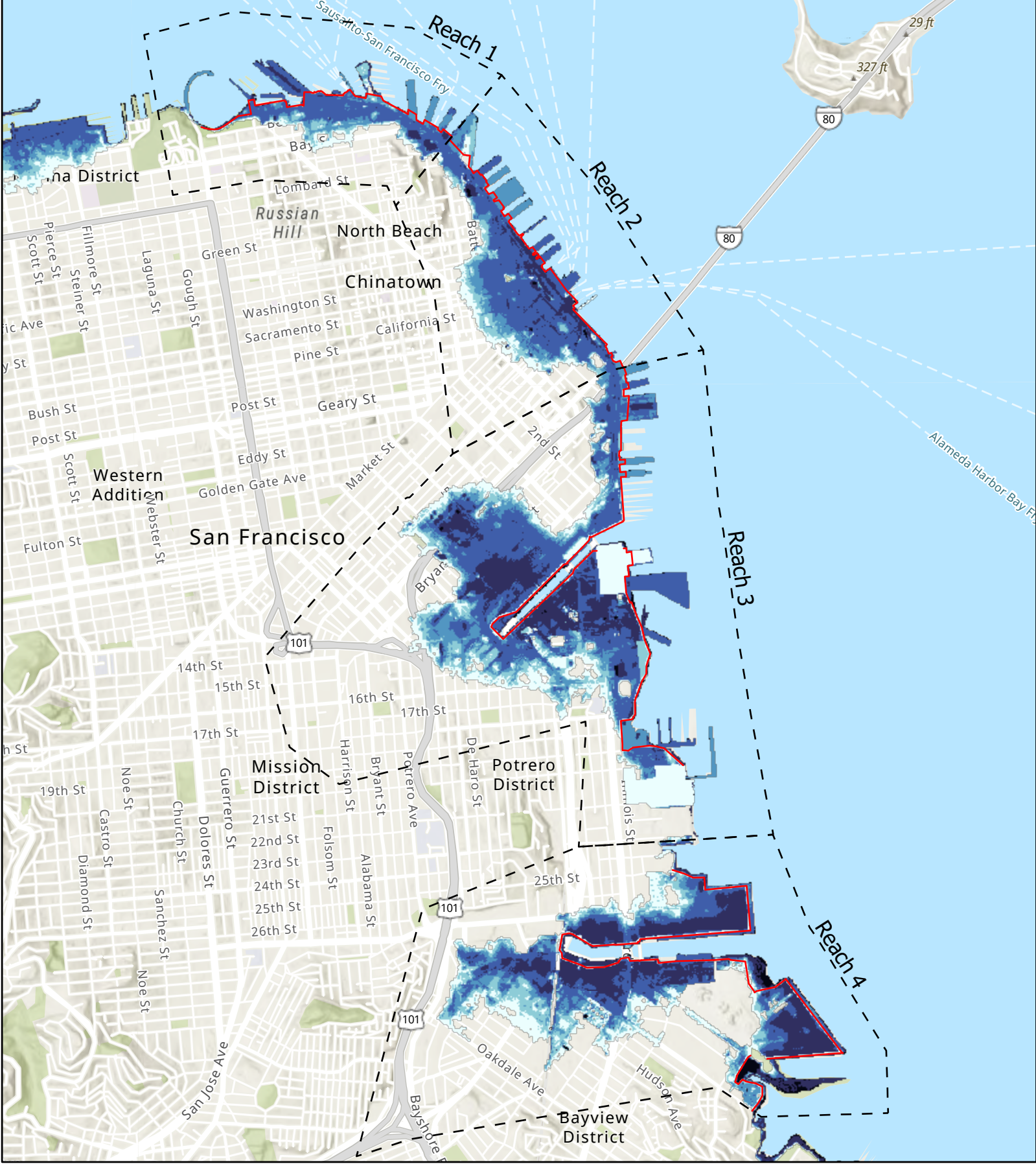




Second Action
 OPC 1:200 Curve
 Time Horizon: 2065
 1% AEP
 39.21 inches of SLC

— Line of Defense
 - - - USACE Reaches

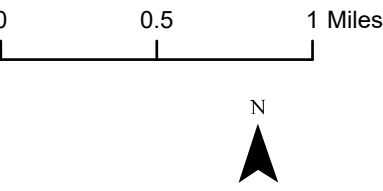


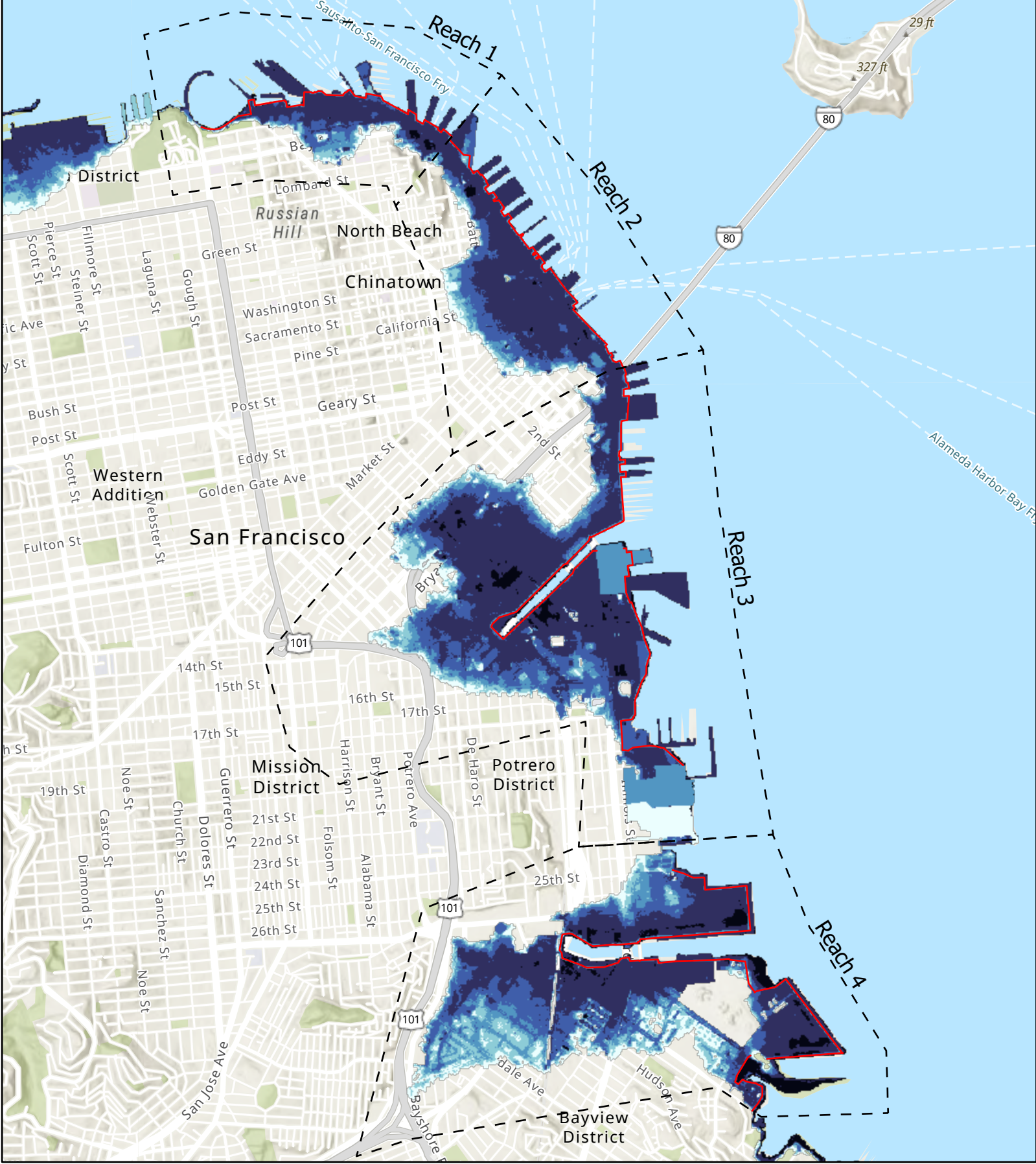


Second Action
 OPC 1:200 Curve
 Time Horizon: 2090
 1% AEP
 69.74 inches of SLC

— Line of Defense
 - - - USACE Reaches

- 0 - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 5 ft
- 5 - 10 ft
- > 10 ft

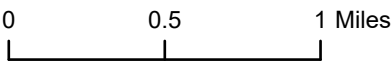


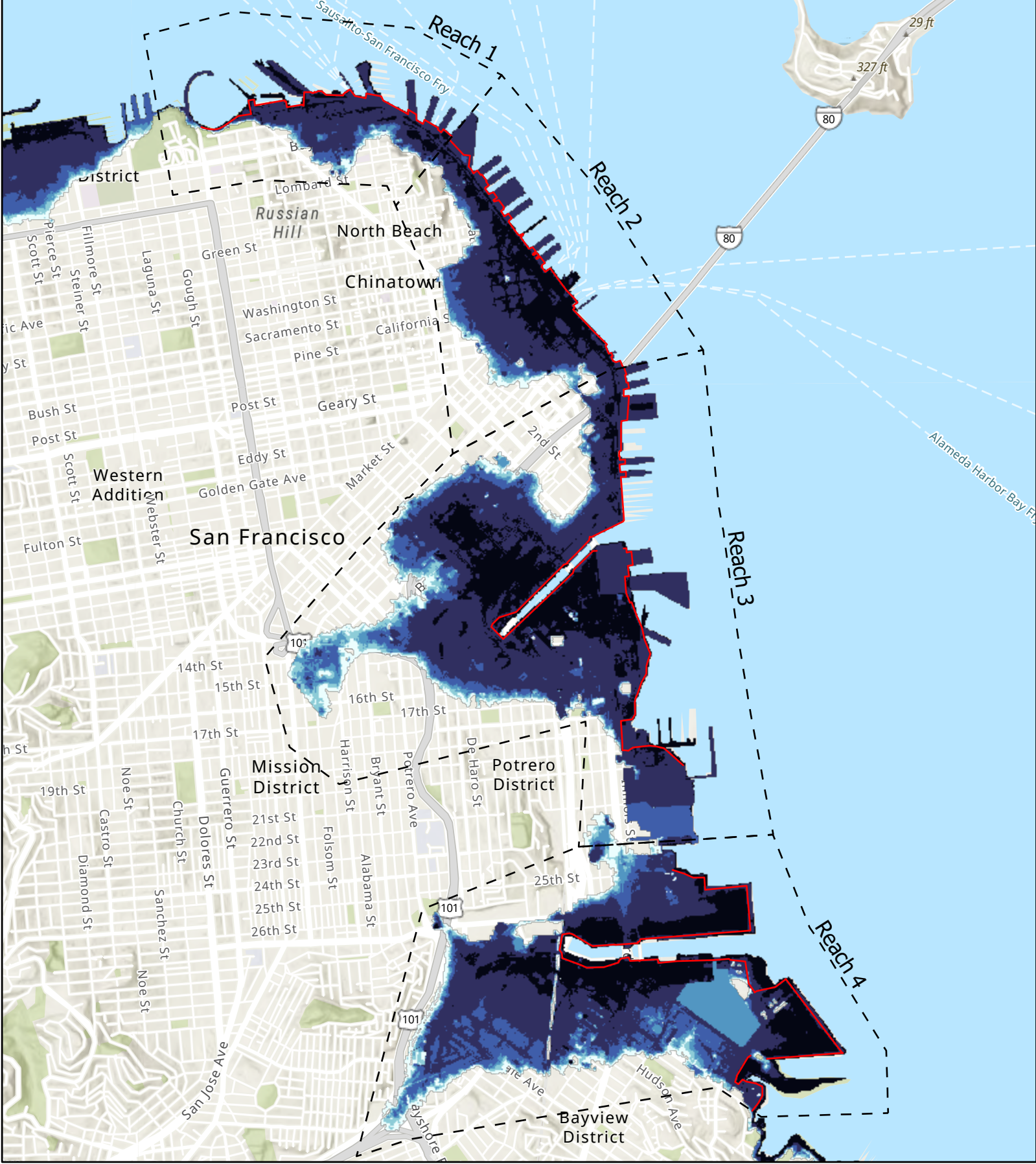


Second Action
 OPC 1:200 Curve
 Time Horizon: 2115
 1% AEP
 103.04 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft





Second Action
 OPC 1:200 Curve
 Time Horizon: 2140
 1% AEP
 140.3 inches of SLC

— Line of Defense
 - - - USACE Reaches

0 - 1 ft
 1 - 2 ft
 2 - 3 ft
 3 - 5 ft
 5 - 10 ft
 > 10 ft

