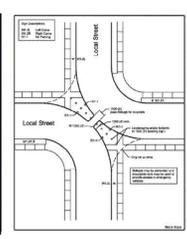
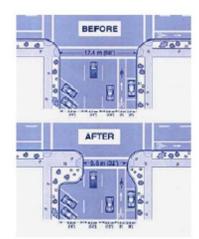


Traffic Calming Examples

- Speed Bumps**
Cost Range: Approx. \$5,000 per pair
- Curb Extensions**
Cost Range: Approx. \$40,000 per intersection (may vary widely based on drainage considerations)
- Traffic Circle**
Cost Range: Approx. \$6,000 - \$10,000
- Diverter**
Cost Range: Approx. \$50,000+ (may vary widely by intersection)



Bryant Avenue S Bicycle Boulevard - Alternatives Matrix

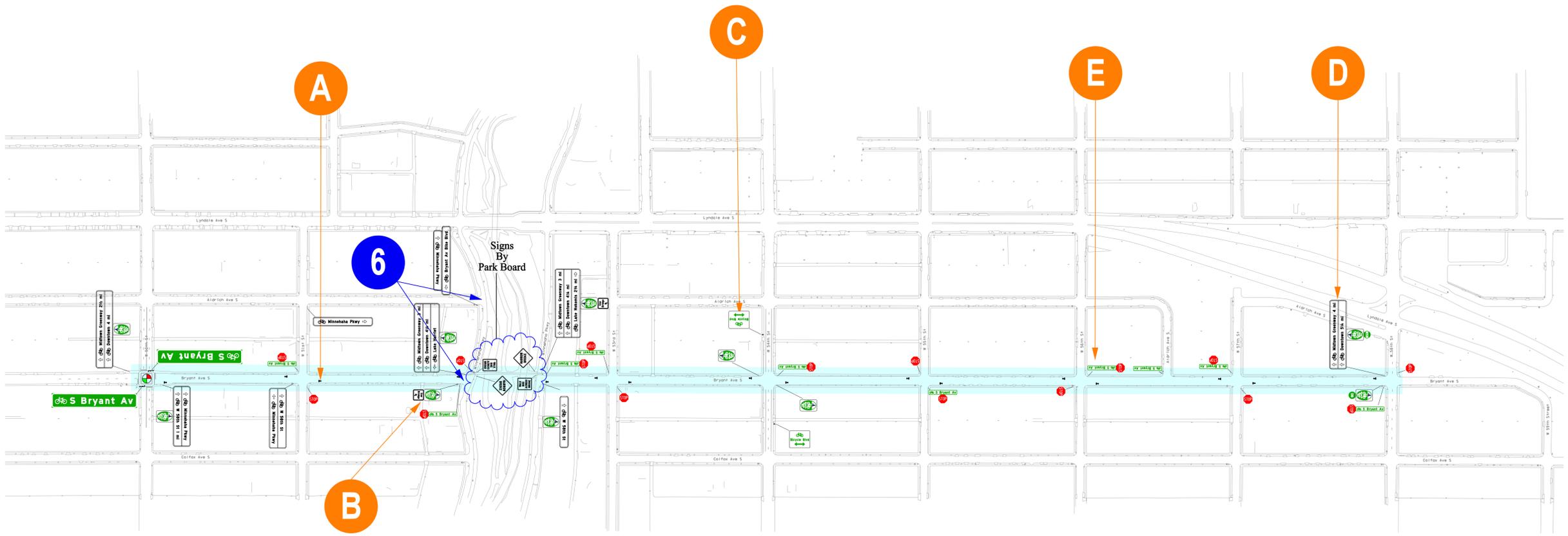
MAP ID No.	Interaction	Alternatives	Estimated Quantities (LS or EA)	Unit Cost	Total Cost	Percent of Construction Budget	Exhibit	Comments
Bicycle Boulevard Basic Elements								
A	Pavement Markings	Required	34	\$300	\$10,200	6%	As Shown	
B	Route Marker Signs	Required	21	\$150	\$3,150	2%	As Shown	
C	Advanced Identity Signs	Required	6	\$250	\$1,500	1%	As Shown	
D	Wayfinding / Destination Signs	Required	20	\$250	\$5,000	3%	As Shown	
E	Modified Street Name Signs	Required	44	\$125	\$5,500	3%	As Shown	
	Education and Promotion	Required	1	\$5,000	\$5,000	3%	-	
					\$30,350	19%		
Bicycle Boulevard Corridor Elements								
Interaction Treatments and Spot Improvement Alternatives								
1	Lyndale Avenue S at Bryant Avenue Bridge Entrance	Alt A: Re-stripe Trail Intersection and Wayfind Sign Bridge Entrance Alt B: Provide Kiosk Alt C: Do Nothing	1 1 1	\$1,100 \$3,000 \$0	\$1,100 \$3,000 \$0	1% 2% 0%	1A 1A -	
2	Bryant Avenue S at Bridge Entrance (Upper)	Alt A: Remove Stop Sign and Install Yield Sign Alt B: Do Nothing	1 0	\$150 \$0	\$150 \$0	0% 0%	- -	
3	Bryant Avenue S at Franklin Avenue W	Alt A: 5' Refuge Median + Exclusive Left Turn Lanes - Allow All Left Turns Alt B: 8' Refuge Median and Curb Extensions - Prohibit EB/WB Left Turns Alt C: 18' Refuge Median (Remove 1 Eastbound Lane) - Allow Left Turns or Prohibit EB/WB Left Turns Alt D: Install No Parking Anytime Corner Clearance Zone (4 Curb Faces Along Franklin Avenue)	1 1 1 1	\$27,300 \$66,300 \$33,400 \$600	\$27,300 \$66,300 \$33,400 \$600	17% 42% 21% 0%	3A 3B 3C -	Parking Removal (19 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (9 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (19 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (9 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking)
4	Bryant Avenue S at 26th Street W	Alt A: Install Curb Extensions (South Side Only to Narrow 26th Street Crossing) Alt B: Do Nothing	1 1	\$34,400 \$0	\$34,400 \$0	22% 0%	4A -	
5	Bryant Avenue S at 28th Street W	Alt A: Install Curb Extensions (North Side Only to Narrow 28th Street Crossing) Alt B: Install No Parking Clearance Zone (Northwest Corner - Remove Approx. 2 Total Stalls) Alt C: Do Nothing	1 1 1	\$38,500 \$150 \$0	\$38,500 \$150 \$0	24% 0% 0%	5A -	
-	Bryant Avenue S (Lake Street W to 50th Street W)	Alt 1: - See Bryant Avenue S Bike Lane Layout - Apply Full Length Between Lake Street and 50th Street (Estimated Cost Per Block) Alt 2: - See Bryant Avenue S Bike Lane Layout - Apply Green Lane Between Lake Street and 40th Street (Shoulders Only Remaining Block) (Estimated Average Cost Per Block) Alt 3: - See Bryant Avenue S Bike Lane Layout - Apply Green Lane Between Lake Street and 36th Street (Shoulders Only Remaining Block) (Estimated Average Cost Per Block)	20 20 20	\$5,160 \$3,480 \$2,808	\$103,200 \$69,600 \$56,160	65% 44% 35%	- - -	
6	Bryant Avenue S at Minnehaha Parkway (North Side)	Alt A: Connect to Minnehaha Parkway Trail via Existing Sidewalk (North Side), Provide Signage Alt B: Connect to Minnehaha Parkway Trail via 51st Street and Aldrich Avenue (Southbound) Alt C: Do Nothing	1 1 1	\$4,600 \$4,600 \$0	\$4,600 \$4,600 \$0	3% 3% 0%	6A 6B -	
10	Bryant Avenue S at Bridge Entrance (Upper)	Alt A: Install Stop Sign (Westbound Bryant Avenue S at Aldrich Avenue S) Alt B: Do Nothing	1 1	\$200 \$0	\$200 \$0	0% 0%	- -	
11	Bryant Avenue S at Aldrich Avenue S (Bridge Entrance)	Alt A: Install No Parking Anytime Corner Clearance Zone (No Parking Clearance Zones Removes Approx. 2 Stalls) Alt B: Do Nothing	2 0	\$150 \$150	\$300 \$0	0% 0%	- -	
12	Bryant Avenue S at Franklin Avenue W	Alt A: Install Street Lighting on Northeast Corner (Utilize Existing Wood pole) Alt B: Do Nothing	1 0	\$2,500 \$0	\$2,500 \$0	2% 0%	- -	
Traffic Calming Alternatives								
7	Bryant Avenue S at 28th Street W to 29th Street W	Alt A: Install Traffic Circle at 28th Street W Alt B: Install Half Closure at 28th Street W Alt C: Curb Extensions (South Side of Intersection at 28th Street W) Alt D: Install Raised Crosswalk at Midtown Greenway Ramp Alt E: Install 3 Chicanes Between 28th Street W and Midtown Greenway Trail Ramp Alt F: Do Nothing	1 1 1 3 1	\$10,900 \$11,300 \$30,000 \$7,000 \$6,900 \$0	\$10,900 \$11,300 \$30,000 \$7,000 \$20,700 \$0	7% 7% 19% 4% 13% 0%	7A 7B 7C 7E -	Requires Removal of a Minimum 2-4 On Street Parking Stalls Per Location
8	Bryant Avenue S (Franklin Avenue W to 22nd Street W) (22nd Street W to 24th Street W) (25th Street W to 28th Street W)	EXISTING - Speed Humps	-	-	-	-	-	
9	Bryant Avenue S at 22nd Street W Bryant Avenue S at 24th Street W Bryant Avenue S at 25th Street W Bryant Avenue S at 26th Street W	EXISTING - Curb Extensions	-	-	-	-	-	
-	To Be Determined (Neighborhood Input)	Install Speed Humps	1	\$5,000	\$5,000	3%	-	
-	To Be Determined (Neighborhood Input)	Install Traffic Circle	1	\$10,900	\$10,900	7%	-	
-	To Be Determined (Neighborhood Input)	Intersection Curb Extensions	1	\$40,000	\$40,000	25%	-	
Total Project Cost*					\$215,960			
Estimated Project Total (Basic Elements)					\$30,350			
Construction Budget					\$180,700			
Surplus / Deficit					\$128,550			

- Existing Speed Humps
- Proposed No Parking Anytime (Remove approx. 2 parking stalls per location shown)
- Existing Traffic Signal
- Typical Pavement Markings**
A:
- Typical Route Marker Sign**
B:
- Advanced Identity Signs**
C:
- Example Destination Sign**
D:
- Typical Street Name Sign**
E:

Bryant Avenue S Bicycle Boulevard (Lyndale Ave to Lake St)



* Total project cost for information only and provides an estimate of 1 full project build-out scenario. The hypothetical scenario estimate is based upon the selection of the basic elements plus 1A, 1B, 2A, 3C, 4A, 5A, 6B, 10, 11, 12 and 7B.



Traffic Calming Examples

Speed Bumps
Cost Range: Approx. \$5,000 per pair



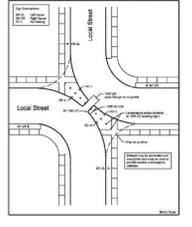
Curb Extensions
Cost Range: Approx. \$40,000 per intersection
(may vary widely based on drainage considerations)



Traffic Circle
Cost Range: Approx. \$6,000 - \$10,000



Diverter
Cost Range: Approx. \$50,000+
(may vary widely by intersection)

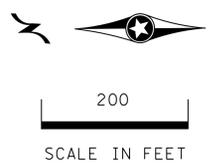


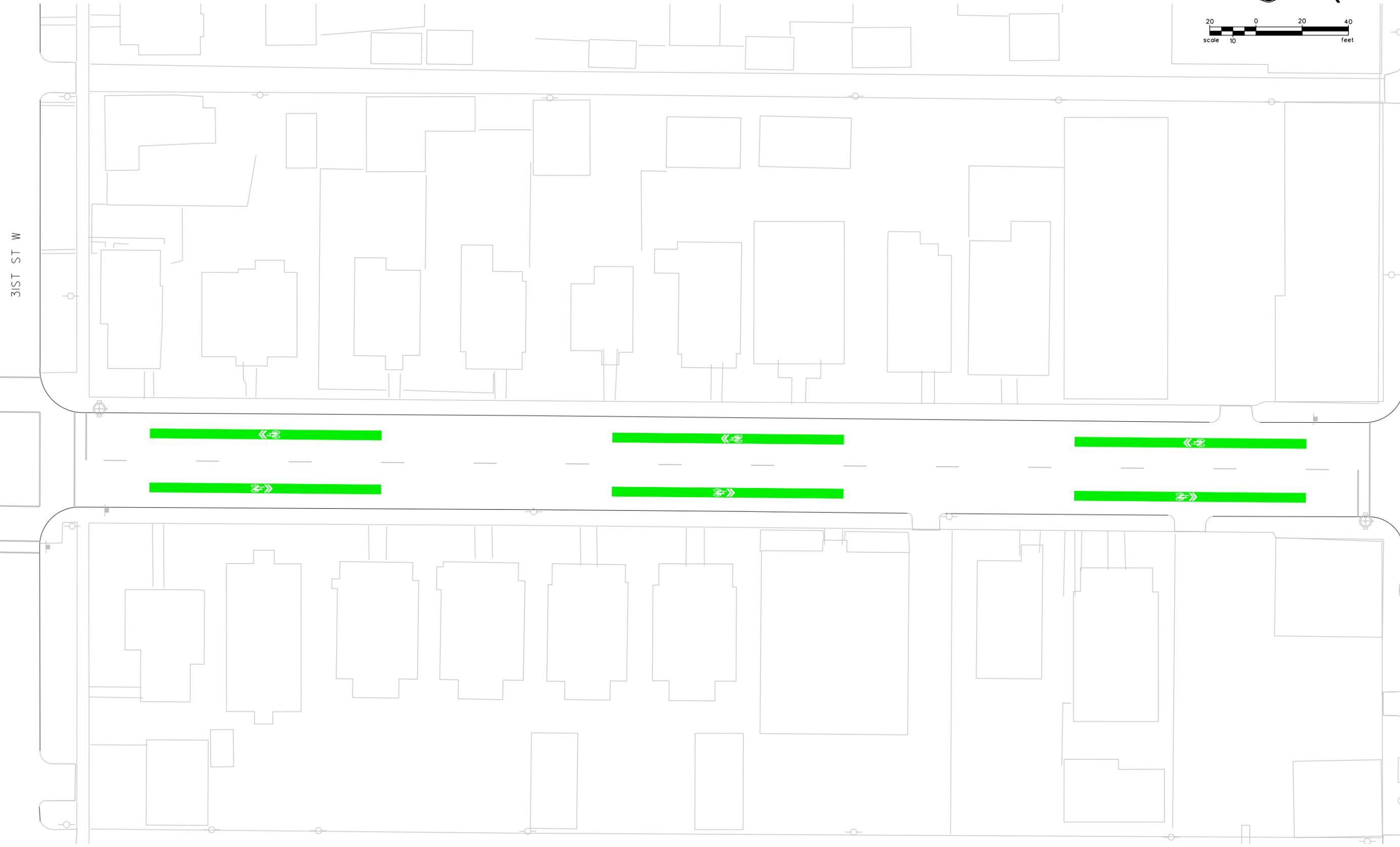
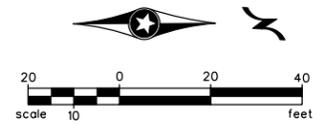
Bryant Avenue S Bicycle Boulevard - Alternatives Matrix

MAP ID No.	Interaction	Alternatives	Estimated Quantities (U.S. or EA)	Unit Cost	Total Cost	Percent of Construction Budget	Exhibit	Comments
Bicycle Boulevard Basic Elements								
A	Pavement Markings	Required	34	\$300	\$10,200	6%	As Shown	
B	Route Marker Signs	Required	21	\$150	\$3,150	2%	As Shown	
C	Advanced Identity Signs	Required	6	\$250	\$1,500	1%	As Shown	
D	Wayfinding / Destination Signs	Required	20	\$250	\$5,000	3%	As Shown	
E	Modified Street Name Signs	Required	44	\$125	\$5,500	3%	As Shown	
	Education and Promotion	Required	1	\$5,000	\$5,000	3%	-	
					\$30,350	19%		
Bicycle Boulevard Corridor Elements								
Intersection Treatments and Spot Improvement Alternatives								
1	Lynndale Ave S at Bryant Avenue S Bridge Entrance	Alt A: Re-striping Trail Intersection and Wayfind Sign Bridge Entrance Alt B: Provide Kiosk Alt C: Do Nothing	1 1 1	\$1,100 \$3,000 \$0	\$1,100 \$3,000 \$0	1% 2% 0%	1A 1A -	
2	Bryant Avenue S at Bridge Entrance (Upper)	Alt A: Remove Stop Sign and Install Yield Sign Alt B: Do Nothing	1 0	\$150 \$0	\$150 \$0	0% 0%	- -	
3	Bryant Avenue S at Franklin Avenue W	Alt A: 8' Refuge Median + Exclusive Left Turn Lanes - Allow All Left Turns Alt B: 8' Refuge Median and Curb Extensions - Prohibit EBWB Left Turns Alt C: 15' Refuge Median (Remove 1' Eastbound Lane) - Allow Left Turns or Prohibit EBWB Left Turns Alt D: Install No Parking Anytime Corner Clearance Zone (4 Curb Faces Along Franklin Avenue)	1 1 1 1	\$27,300 \$66,300 \$33,400 \$600	\$27,300 \$66,300 \$33,400 \$600	17% 42% 21% 0%	3A 3B 3C -	Parking Removal (19 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (9 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (19 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking) Parking Removal (9 Total Stalls), Remove Rush Hour Restriction (Add Peak Hour Parking)
4	Bryant Avenue S at 28th Street W	Alt A: Install Curb Extensions (South Side Only to Narrow 28th Street Crossing) Alt B: Do Nothing	1 1	\$34,400 \$0	\$34,400 \$0	22% 0%	4A -	
5	Bryant Avenue S at 28th Street W	Alt A: Install Curb Extensions (North Side Only to Narrow 28th Street Crossing) Alt B: Install No Parking Clearance Zone (Northwest Corner - Remove Approx. 2 Total Stalls) Alt C: Do Nothing	1 1 1	\$38,500 \$150 \$0	\$38,500 \$150 \$0	24% 0% 0%	5A - -	
6	Bryant Avenue S (Lake Street W to 50th Street W)	Alt 1: - See Bryant Avenue S Bike Lane Layout - Apply Full Length Between Lake Street and 50th Street (Estimated Cost Per Block) Alt 2: - See Bryant Avenue S Bike Lane Layout - Apply Green Lane Between Lake Street and 40th Street (Sharrows Only Remaining Blocks) (Estimated Average Cost Per Block) Alt 3: - See Bryant Avenue S Bike Lane Layout - Apply Green Lane Between Lake Street and 36th Street (Sharrows Only Remaining Blocks) (Estimated Average Cost Per Block)	20 20 20	\$5,169 \$3,489 \$2,808	\$103,200 \$69,600 \$56,160	65% 44% 38%	- - -	
7	Bryant Avenue S at Minnehaha Parkway (North Side)	Alt A: Connect to Minnehaha Parkway Trail via Existing Sidewalk (North Side), Provide Signage. Alt B: Connect to Minnehaha Parkway Trail via 51st Street and Aldrich Avenue (Southbound) Alt C: Do Nothing	1 1 1	\$4,600 \$4,600 \$0	\$4,600 \$4,600 \$0	3% 3% 0%	6A 6B -	
10	Bryant Avenue S at Bridge Entrance (Upper)	Alt A: Install Stop Sign (Westbound Bryant Avenue S at Aldrich Avenue S) Alt B: Do Nothing	1 1	\$200 \$0	\$200 \$0	0% 0%	- -	
11	Bryant Avenue S at Aldrich Avenue S (Bridge Entrance)	Alt A: Install No Parking Anytime Corner Clearance Zone (No Parking Clearance Zones Removes Approx. 2 Stalls) Alt B: Do Nothing	2 0	\$150 \$150	\$300 \$0	0% 0%	- -	
12	Bryant Avenue S at Franklin Avenue W	Alt A: Install Street Lighting on Northeast Corner (Utilize Existing Wood pole) Alt B: Do Nothing	1 0	\$2,500 \$0	\$2,500 \$0	2% 0%	- -	
Traffic Calming Alternatives								
7	Bryant Avenue S at 28th Street W to 29th Street W	Alt A: Install Traffic Circle at 28th Street W Alt B: Install Hill Closure at 28th Street W Alt C: Curb Extensions (South Side of Intersection at 29th Street W) Alt D: Install Raised Crosswalk at Midtown Greenway Trail Ramp Alt E: Install 3 Chicanes Between 28th Street W and Midtown Greenway Trail Ramp Alt F: Do Nothing	1 1 1 1 3 1	\$10,800 \$11,300 \$30,000 \$7,000 \$6,900 \$0	\$10,800 \$11,300 \$30,000 \$7,000 \$20,700 \$0	7% 7% 19% 4% 13% 0%	7A 7B 7C 7D 7E -	Requires Removal of a Minimum 2-4 On Street Parking Stalls Per Location
8	Bryant Avenue S: (Franklin Avenue W to 22nd Street W) (23rd Street W to 24th Street W) (25th Street W to 26th Street W)	EXISTING - Speed Humps	-	-	-	-	-	
9	Bryant Avenue S at 22nd Street W Bryant Avenue S at 24th Street W Bryant Avenue S at 25th Street W Bryant Avenue S at 26th Street W	EXISTING - Curb Extensions	-	-	-	-	-	
	- To Be Determined (Neighborhood Input)	Install Speed Humps	1	\$5,000	\$5,000	3%	-	
	- To Be Determined (Neighborhood Input)	Install Traffic Circle	1	\$10,800	\$10,800	7%	-	
	- To Be Determined (Neighborhood Input)	Intersection Curb Extensions	1	\$40,000	\$40,000	25%	-	
			Total Project Cost		\$215,960			
			Estimated Project Total (Basic Elements)		\$30,350			
			Construction Budget		\$158,700			
			Surplus / Deficit		\$128,350			

- Existing Speed Humps
- Proposed No Parking Anytime (Remove approx. 2 parking stalls per location shown)
- Existing Traffic Signal
- Typical Pavement Markings**
A
- Typical Route Marker Sign**
B
- Advanced Identity Signs**
C
- Example Destination Sign**
D
- Typical Street Name Sign**
E

Bryant Avenue S Bicycle Boulevard (50th St to 58th St)





\$FILE\$ \$MODEL\$ \$DATE\$ \$TIME\$

S.P. 141-091-015

DESIGN TEAM				
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>DRB</u>				
CHECKED BY: <u>HNK</u>				
	NO.	BY	DATE	

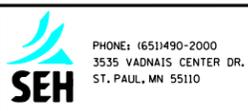
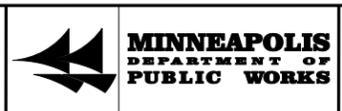
DRAFT

REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Certified By: _____ Lic. No. _____
 Licensed Professional Engineer

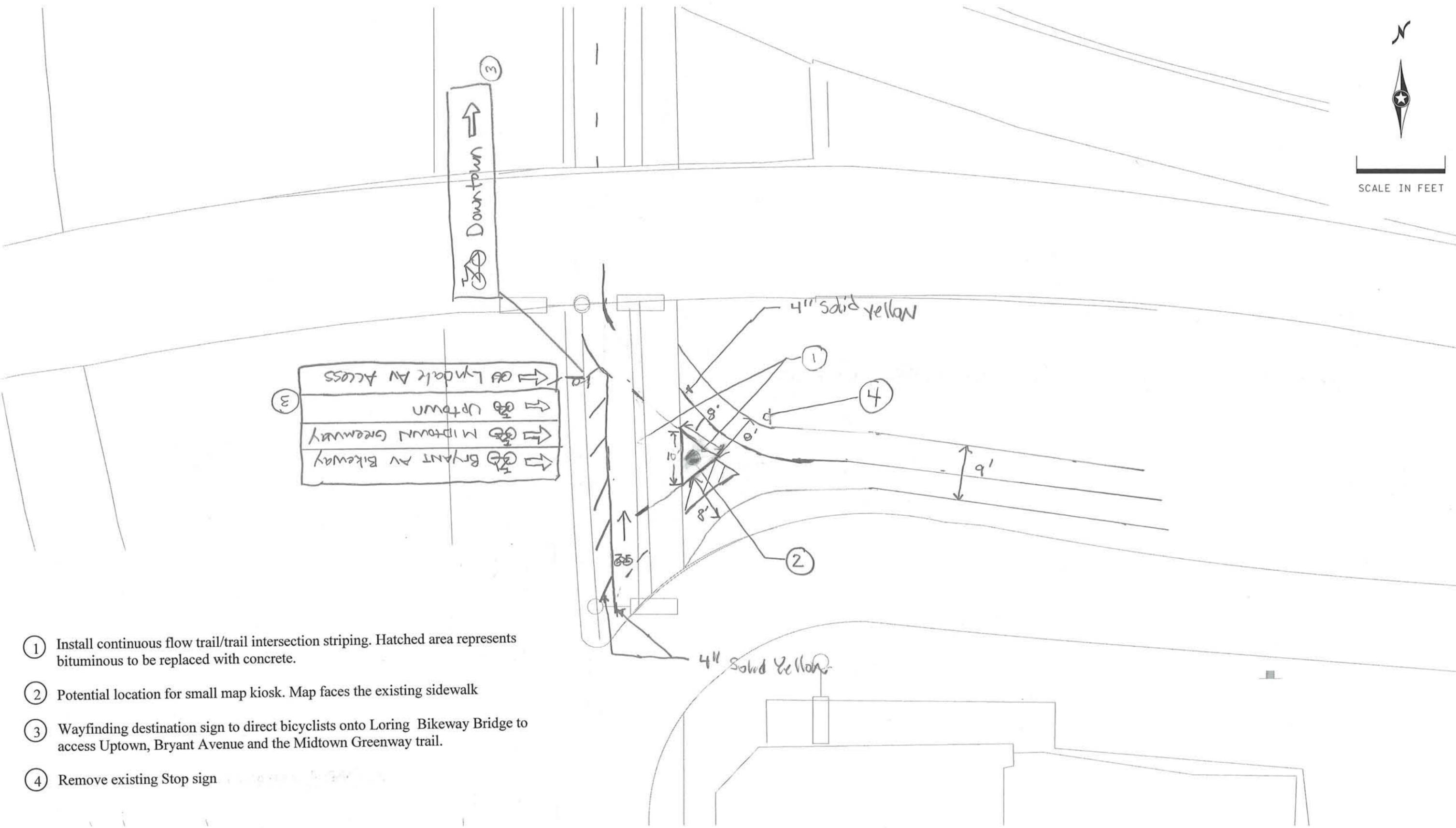
Printed Name: _____ Date: _____



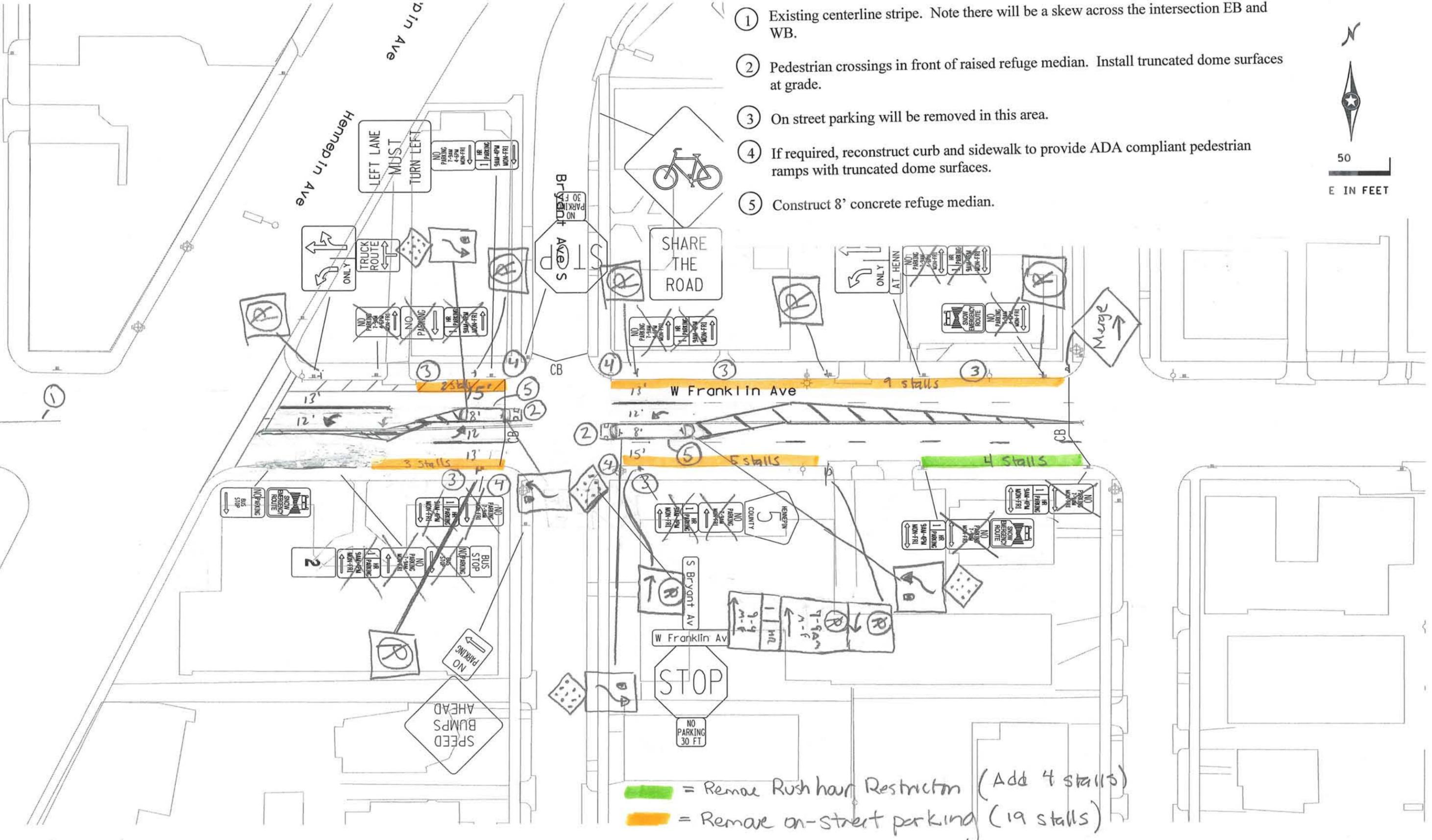
MINNEAPOLIS, MINNESOTA
 S.P. 141-091-015

BRYANT AVENUE SOUTH BIKE LANE IMPROVEMENTS

FILE NO. MNPLS107438	-
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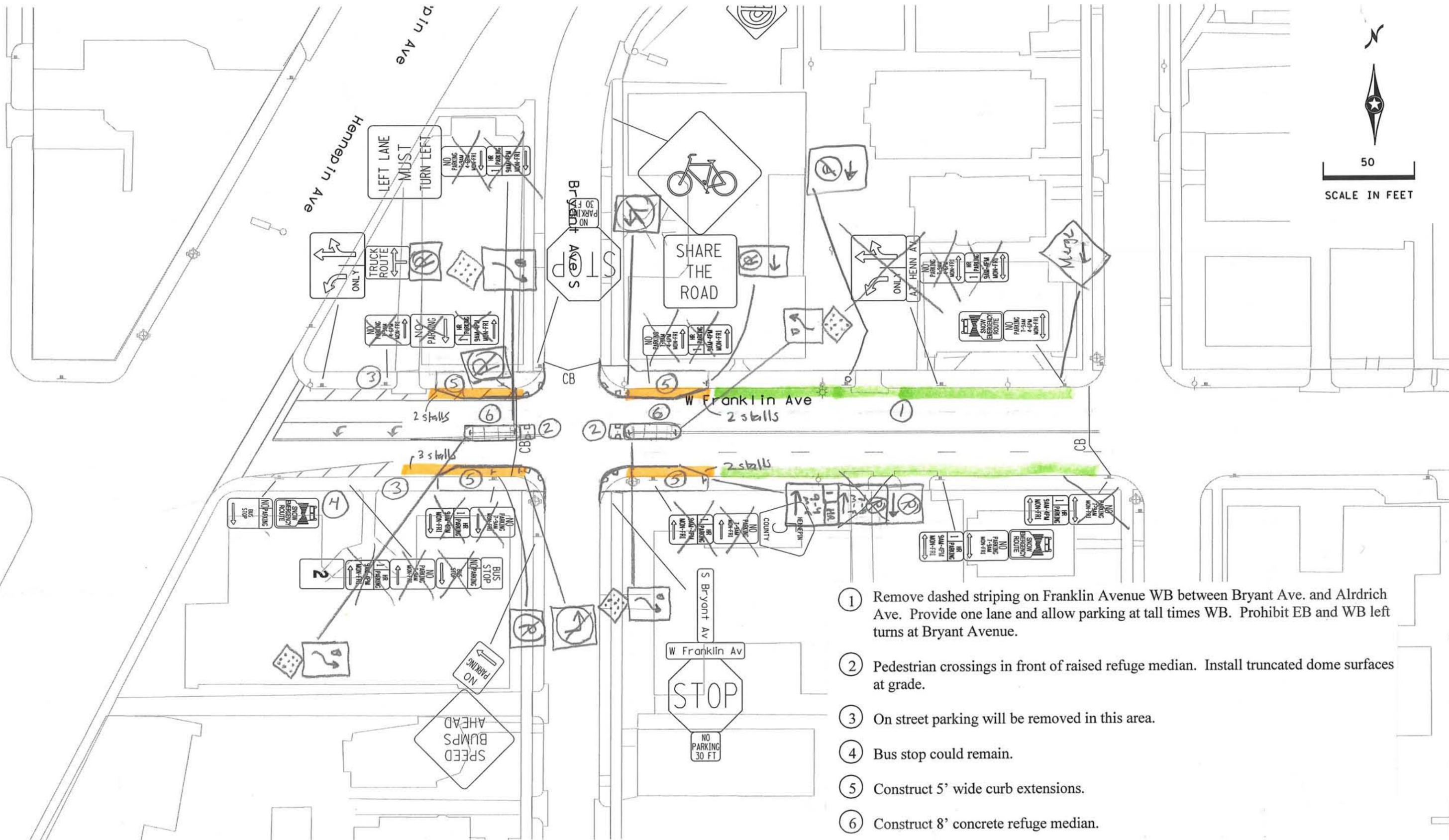
- ① Install continuous flow trail/trail intersection striping. Hatched area represents bituminous to be replaced with concrete.
- ② Potential location for small map kiosk. Map faces the existing sidewalk
- ③ Wayfinding destination sign to direct bicyclists onto Loring Bikeway Bridge to access Uptown, Bryant Avenue and the Midtown Greenway trail.
- ④ Remove existing Stop sign



- ① Existing centerline stripe. Note there will be a skew across the intersection EB and WB.
- ② Pedestrian crossings in front of raised refuge median. Install truncated dome surfaces at grade.
- ③ On street parking will be removed in this area.
- ④ If required, reconstruct curb and sidewalk to provide ADA compliant pedestrian ramps with truncated dome surfaces.
- ⑤ Construct 8' concrete refuge median.

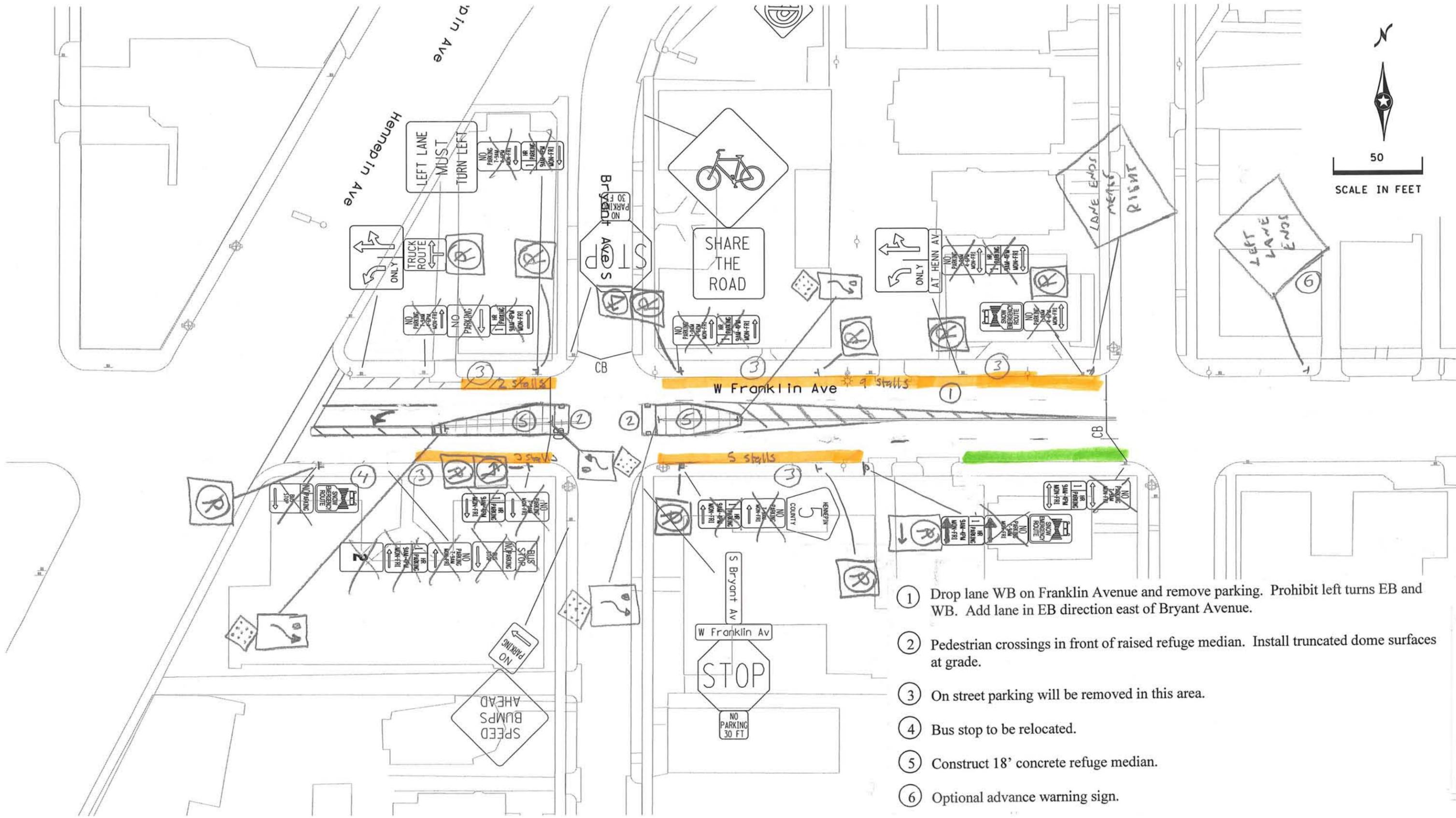


= Remove Rush hour Restriction (Add 4 stalls)
 = Remove on-street parking (19 stalls)



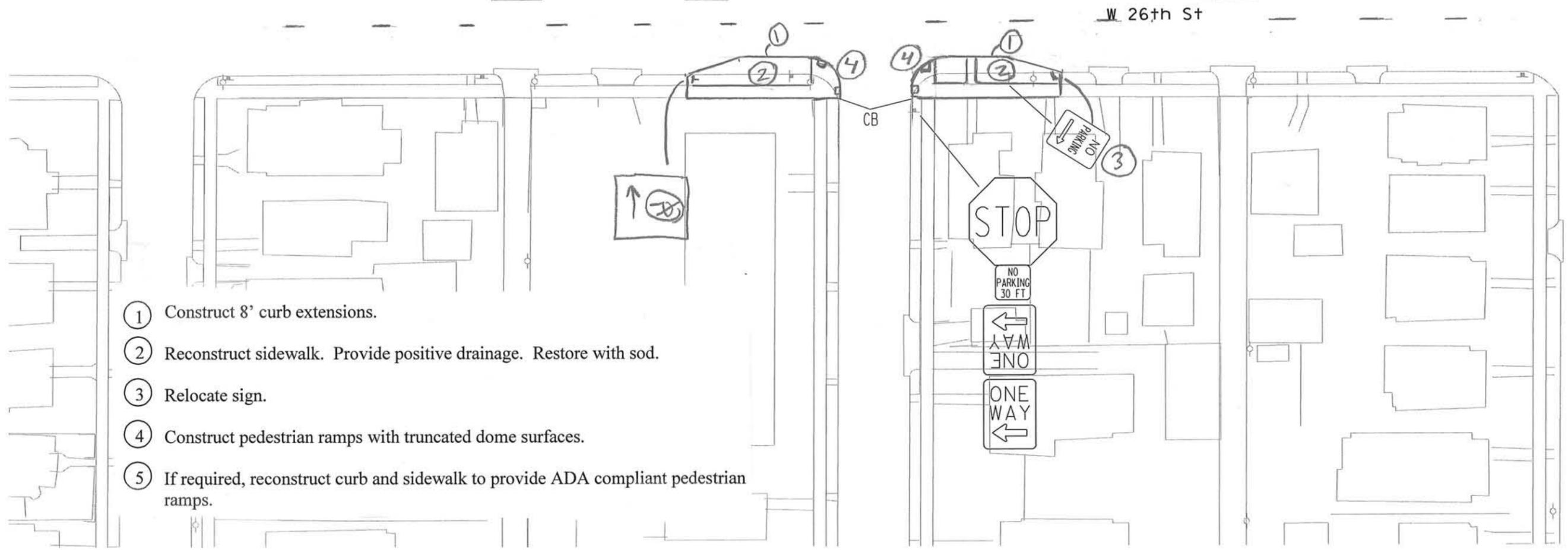
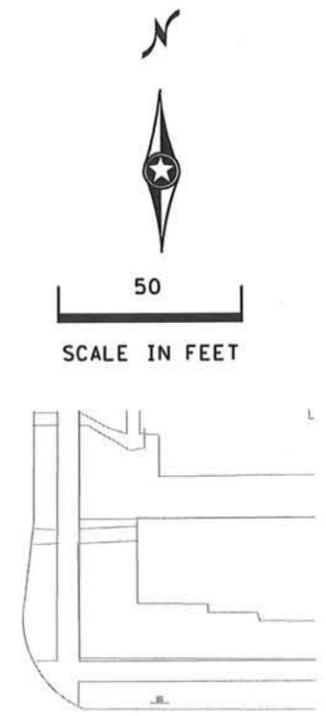
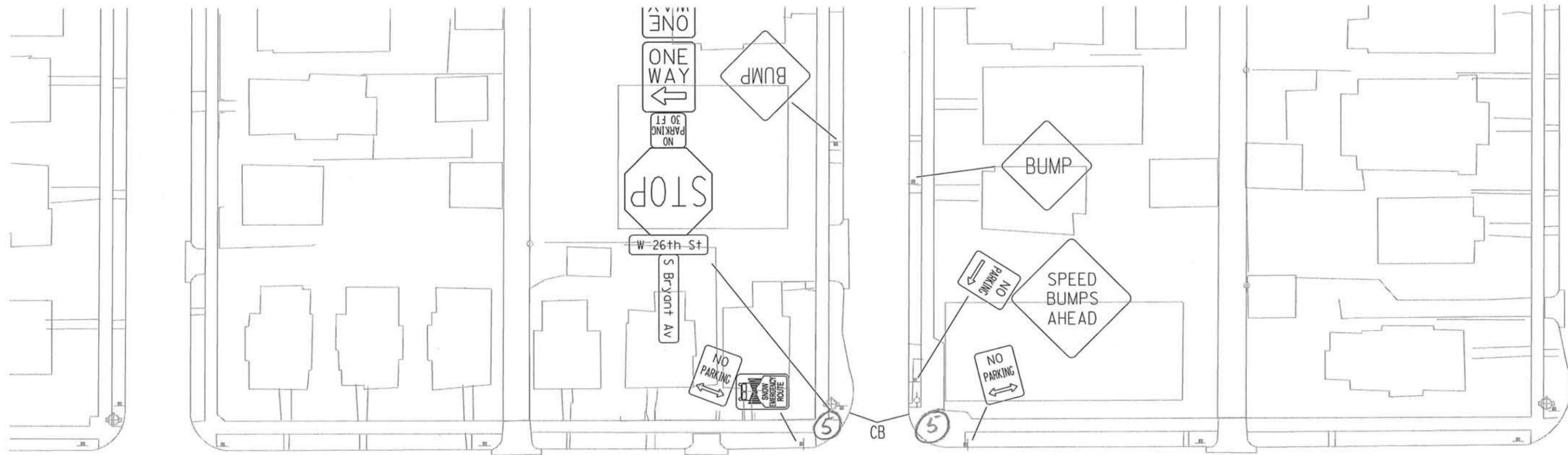
- ① Remove dashed striping on Franklin Avenue WB between Bryant Ave. and Aldrich Ave. Provide one lane and allow parking at all times WB. Prohibit EB and WB left turns at Bryant Avenue.
- ② Pedestrian crossings in front of raised refuge median. Install truncated dome surfaces at grade.
- ③ On street parking will be removed in this area.
- ④ Bus stop could remain.
- ⑤ Construct 5' wide curb extensions.
- ⑥ Construct 8' concrete refuge median.

= Remove on-street parking (9 stalls)
 = Remove rush hour restriction (add 14 stalls)

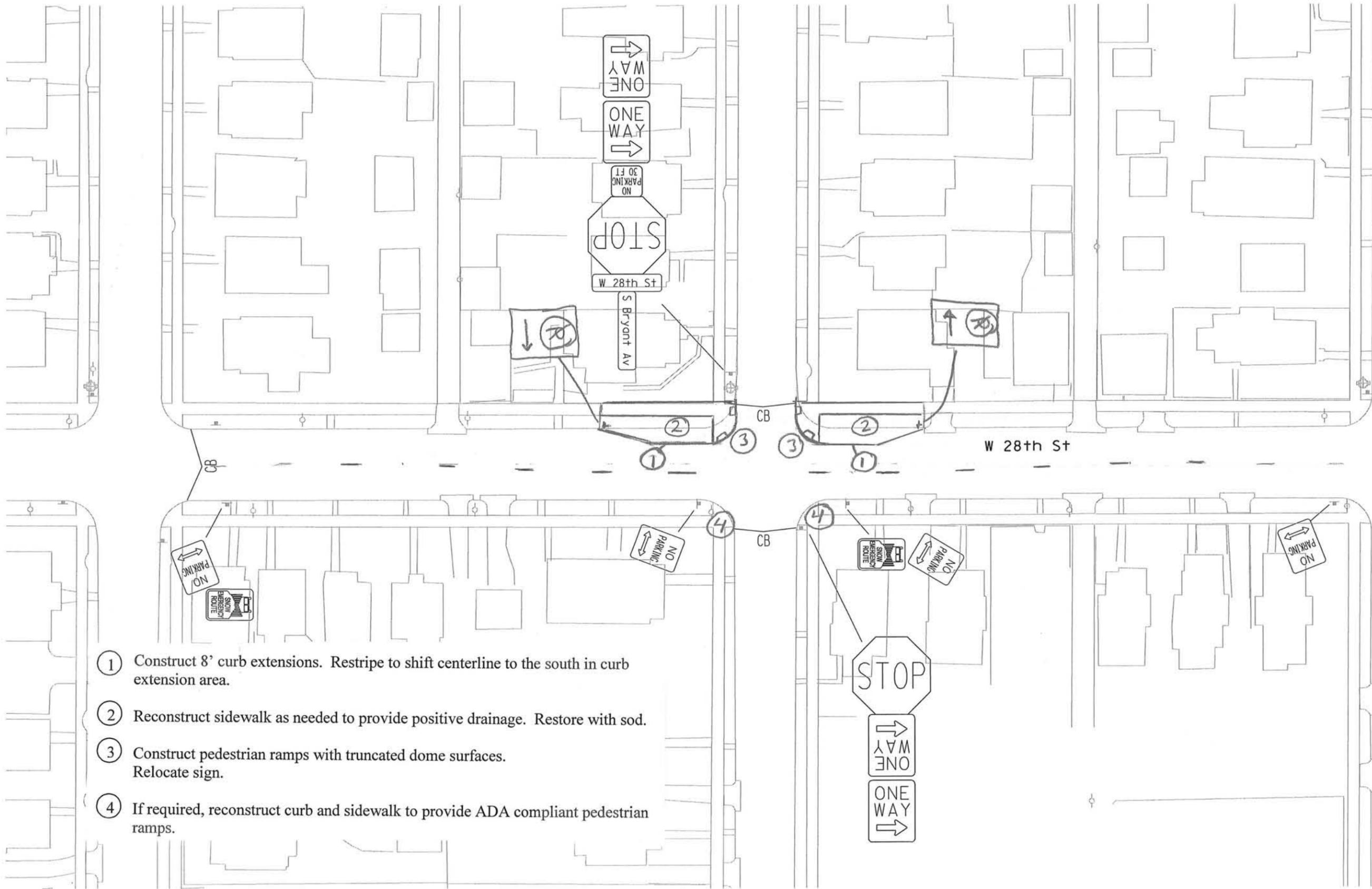


- ① Drop lane WB on Franklin Avenue and remove parking. Prohibit left turns EB and WB. Add lane in EB direction east of Bryant Avenue.
- ② Pedestrian crossings in front of raised refuge median. Install truncated dome surfaces at grade.
- ③ On street parking will be removed in this area.
- ④ Bus stop to be relocated.
- ⑤ Construct 18' concrete refuge median.
- ⑥ Optional advance warning sign.

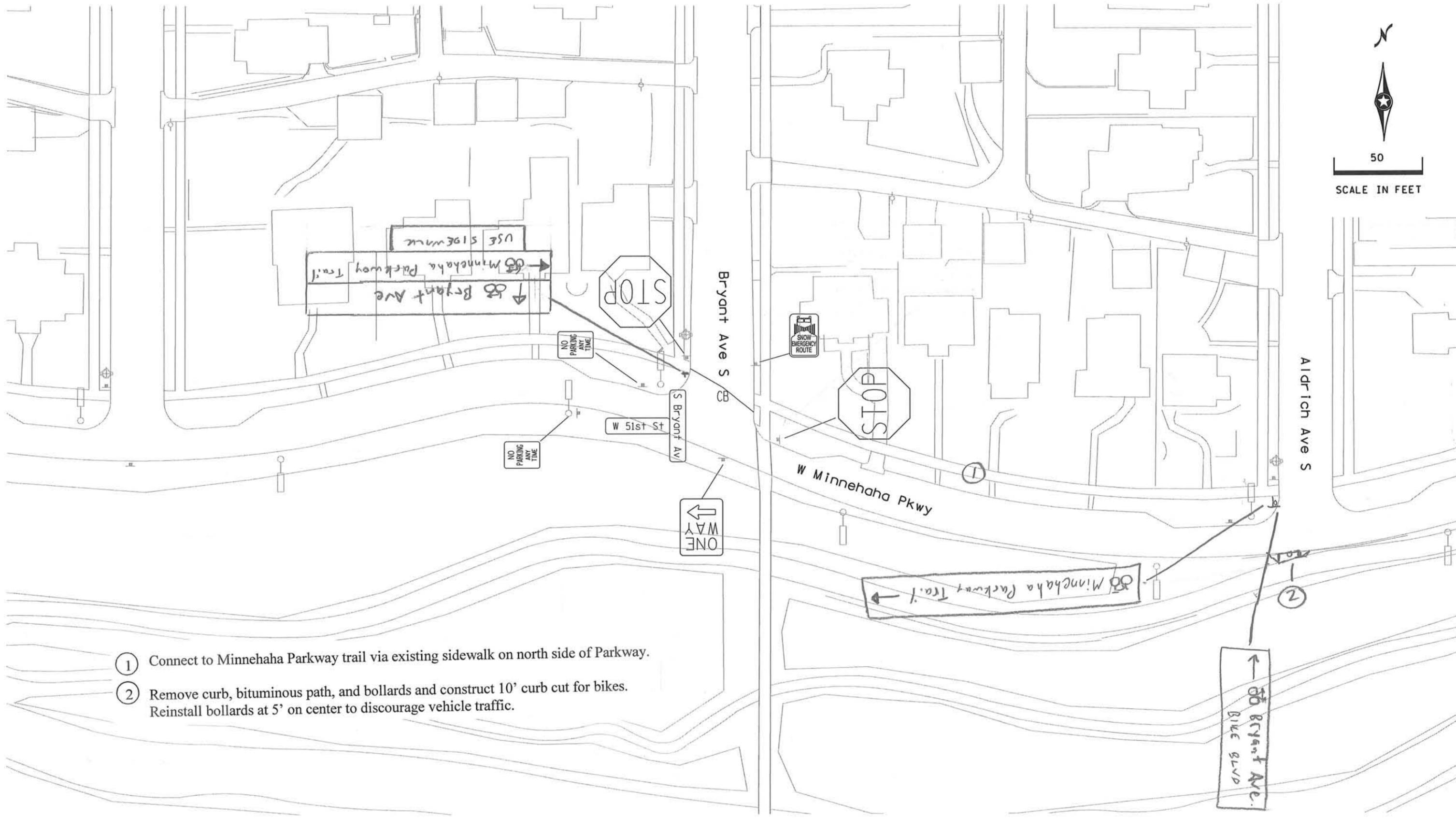
█ = Remove rush hour restriction (add 4 stalls)
█ = Remove on-street parking (19 stalls)



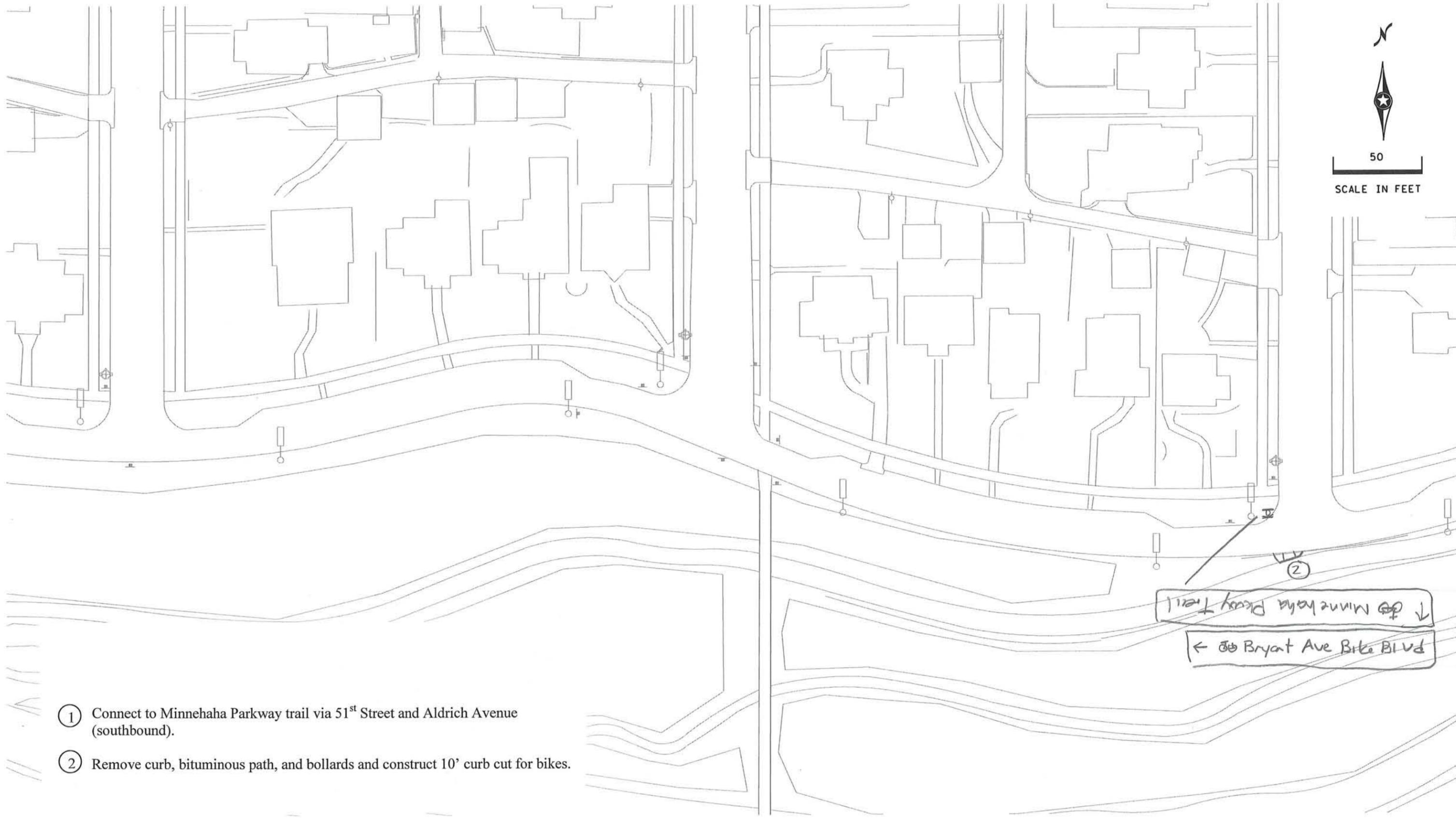
- ① Construct 8' curb extensions.
- ② Reconstruct sidewalk. Provide positive drainage. Restore with sod.
- ③ Relocate sign.
- ④ Construct pedestrian ramps with truncated dome surfaces.
- ⑤ If required, reconstruct curb and sidewalk to provide ADA compliant pedestrian ramps.



- ① Construct 8' curb extensions. Restripe to shift centerline to the south in curb extension area.
- ② Reconstruct sidewalk as needed to provide positive drainage. Restore with sod.
- ③ Construct pedestrian ramps with truncated dome surfaces. Relocate sign.
- ④ If required, reconstruct curb and sidewalk to provide ADA compliant pedestrian ramps.



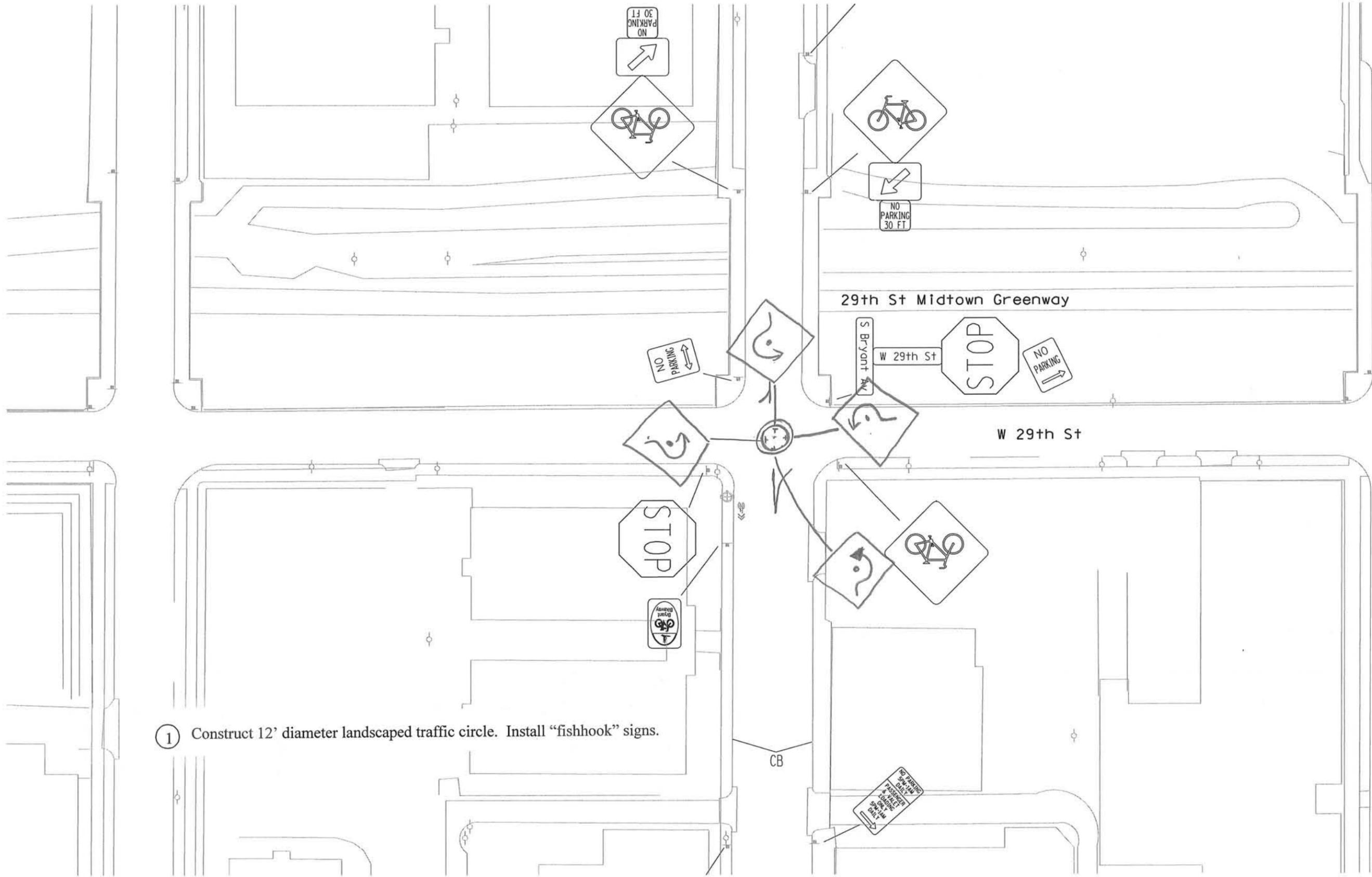
- ① Connect to Minnehaha Parkway trail via existing sidewalk on north side of Parkway.
- ② Remove curb, bituminous path, and bollards and construct 10' curb cut for bikes. Reinstall bollards at 5' on center to discourage vehicle traffic.



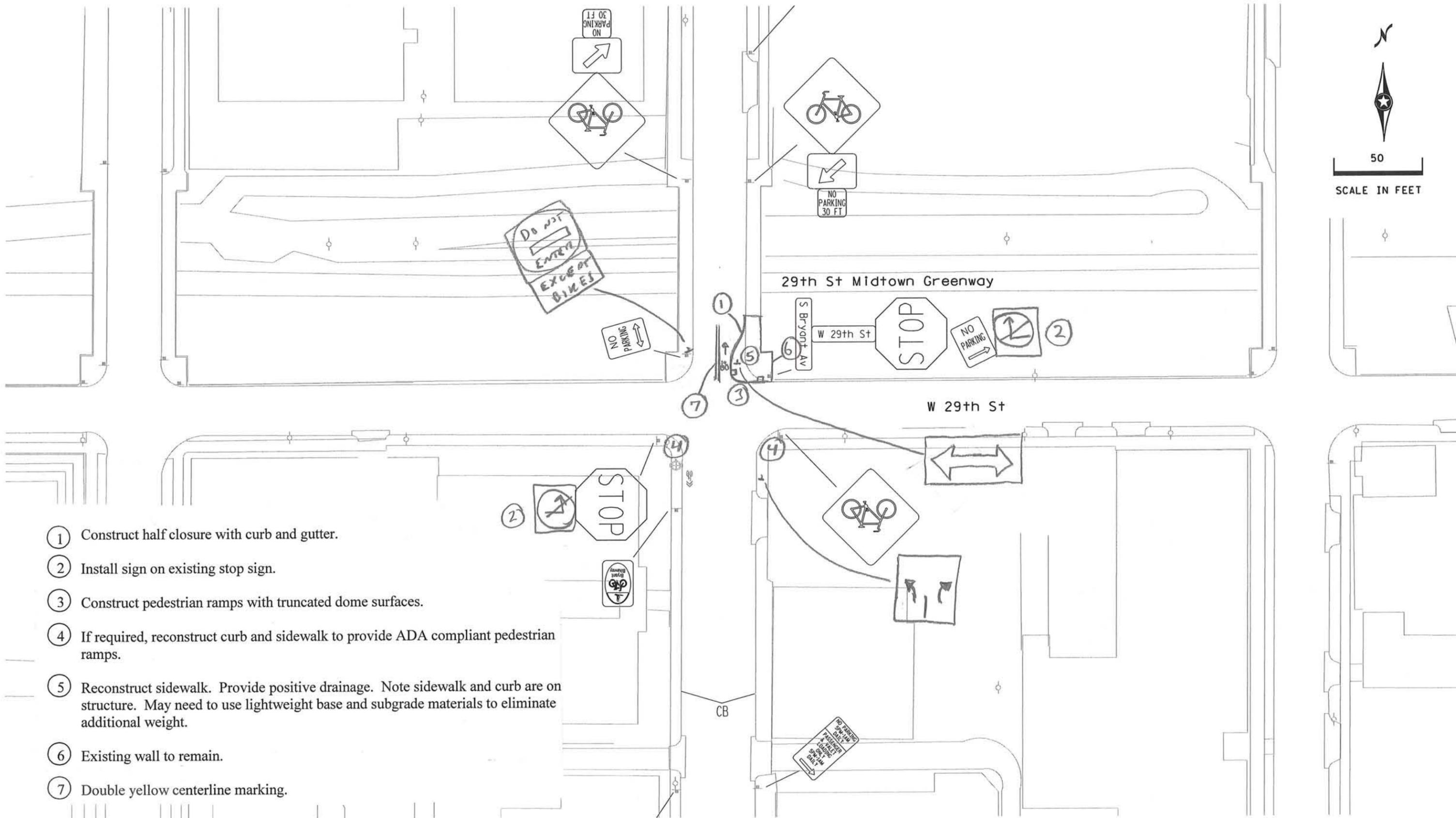
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SCALE IN FEET

- ① Connect to Minnehaha Parkway trail via 51st Street and Aldrich Avenue (southbound).
- ② Remove curb, bituminous path, and bollards and construct 10' curb cut for bikes.

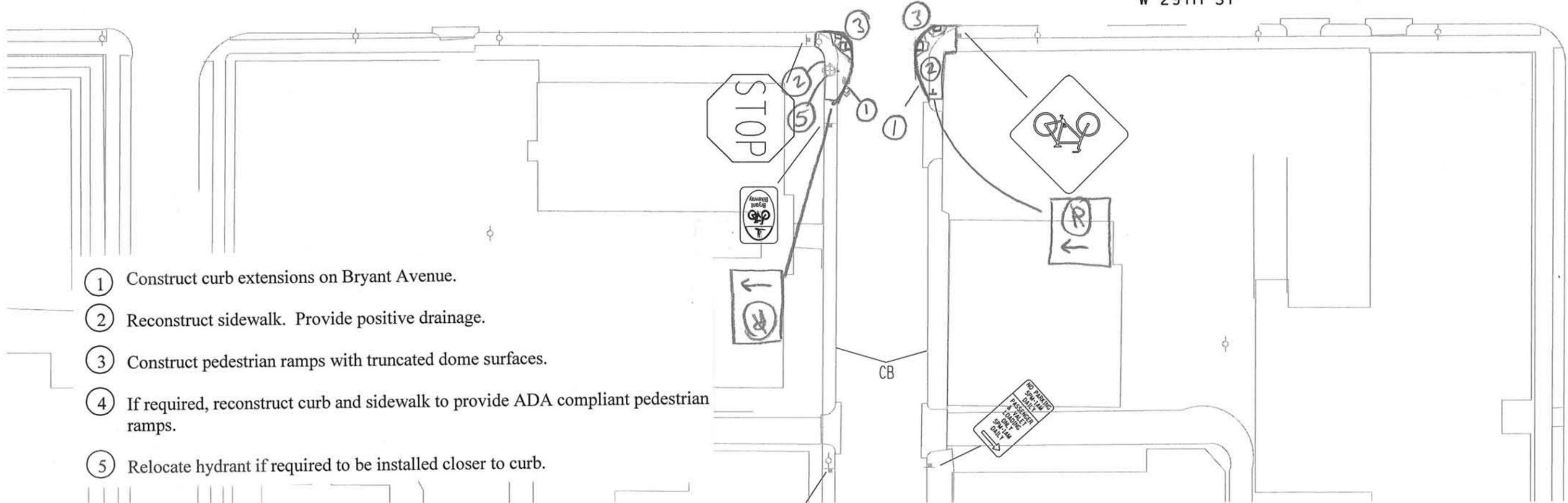
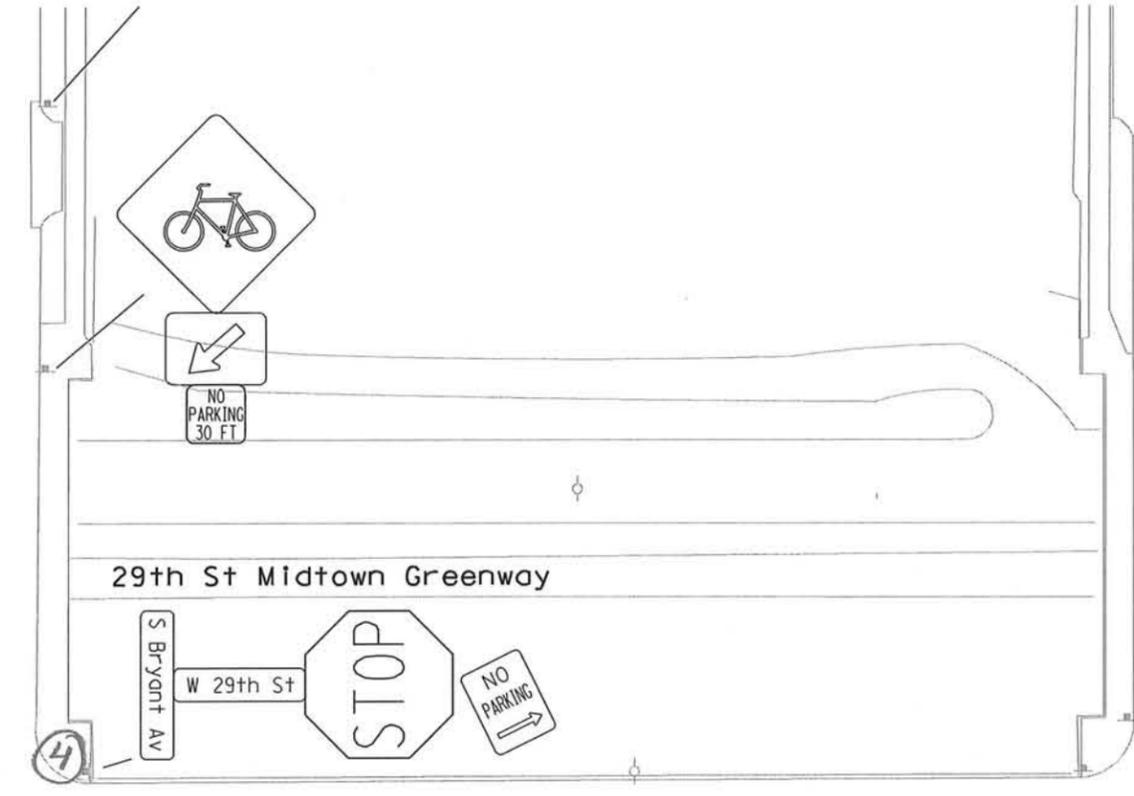
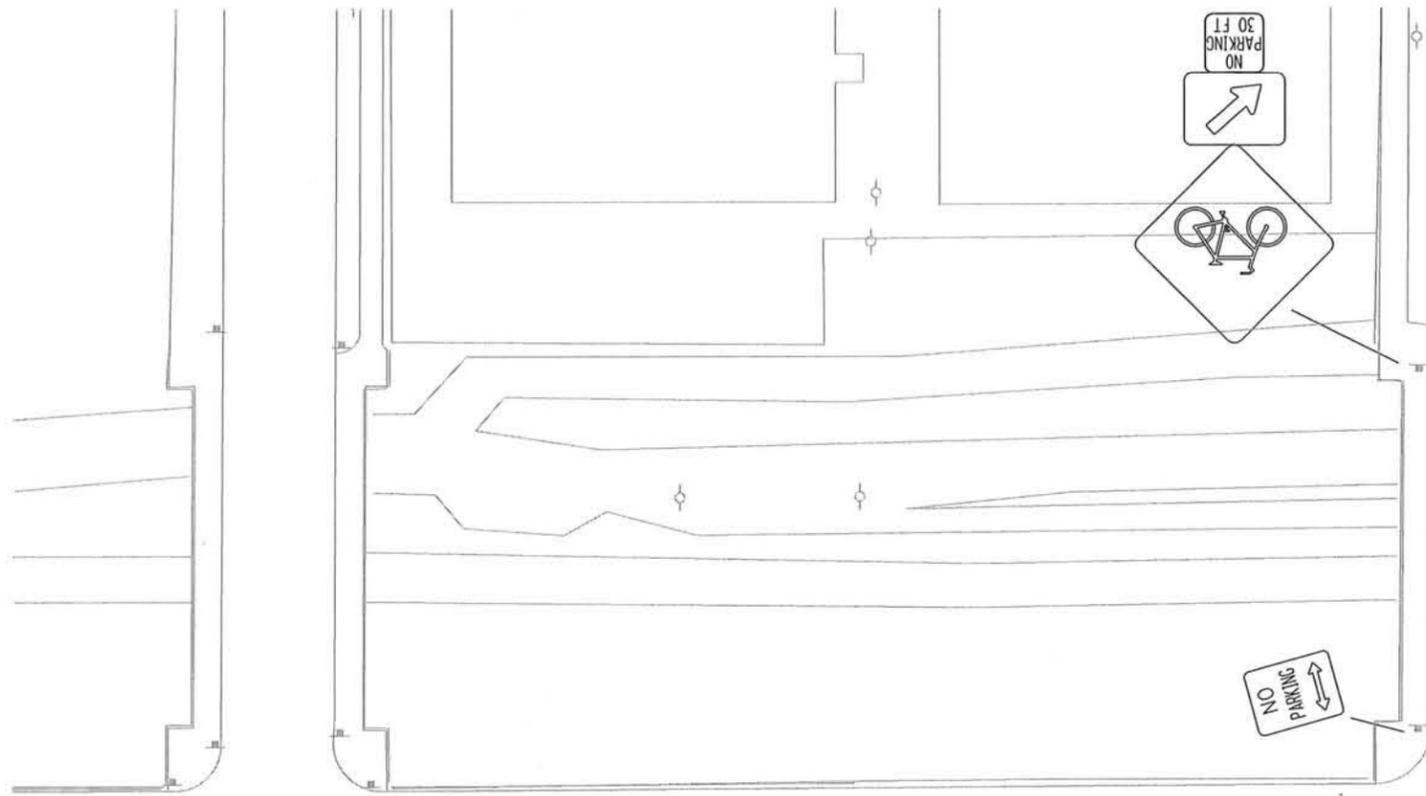
↓ to Minnehaha Parkway Trail
← Bryant Ave Bike Blvd



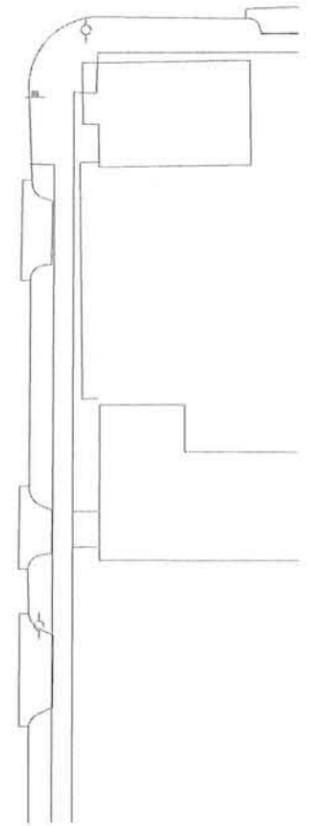
① Construct 12' diameter landscaped traffic circle. Install "fishhook" signs.

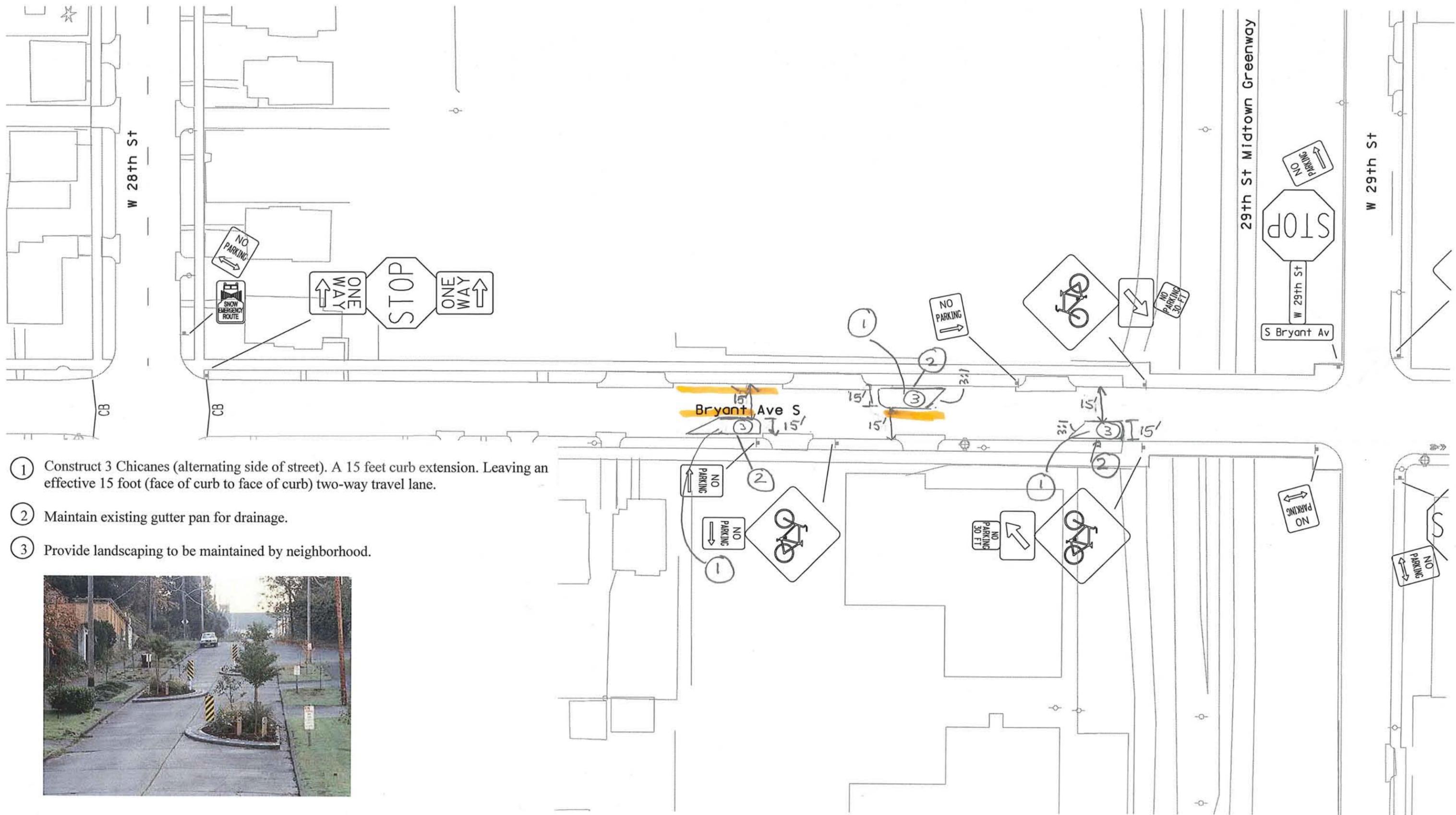


- ① Construct half closure with curb and gutter.
- ② Install sign on existing stop sign.
- ③ Construct pedestrian ramps with truncated dome surfaces.
- ④ If required, reconstruct curb and sidewalk to provide ADA compliant pedestrian ramps.
- ⑤ Reconstruct sidewalk. Provide positive drainage. Note sidewalk and curb are on structure. May need to use lightweight base and subgrade materials to eliminate additional weight.
- ⑥ Existing wall to remain.
- ⑦ Double yellow centerline marking.



- ① Construct curb extensions on Bryant Avenue.
- ② Reconstruct sidewalk. Provide positive drainage.
- ③ Construct pedestrian ramps with truncated dome surfaces.
- ④ If required, reconstruct curb and sidewalk to provide ADA compliant pedestrian ramps.
- ⑤ Relocate hydrant if required to be installed closer to curb.





- ① Construct 3 Chicanes (alternating side of street). A 15 foot curb extension. Leaving an effective 15 foot (face of curb to face of curb) two-way travel lane.
- ② Maintain existing gutter pan for drainage.
- ③ Provide landscaping to be maintained by neighborhood.



= New No Parking Zone (Total 6 Stalls)