

CITY OF KIRKLAND

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**DEPARTMENT OF PUBLIC WORKS
PRE-APPROVED PLANS POLICY**

Policy R-24: Rectangular Rapid Flash Beacon (RRFB) Installation Policy**RRFB Power Source Determination**

Installation of an RRFB at a mid-block crossing can improve pedestrian safety and comfort. RRFBs have been proven to significantly increase vehicle yield rates at pedestrian crossings, but they can only do this when they are installed and functioning properly.

In order to maximize dependability and reduce ongoing maintenance cost the City prefers that RRFBs be installed with a direct AC power connection. There are instances where there is a need to install a RRFB but providing an AC power connection would make the location cost-prohibitive. In these cases DC (solar) powered RRFBs may be used. The following criteria should be used when determining if a DC (solar) powered RRFB is acceptable.

Table 1: RRFB Power Source Determination

Access to Power	Solar Exposure	
	Inadequate	Adequate
≤ 50'	AC	AC
> 50'	AC	DC (solar)

NOTE:

The location of RRFBs will be determined based on its effectiveness to provide a benefit to pedestrians crossing at the crosswalk. The RRFBs will not be located based solely on optimizing access to power.

RRFB Component List

ID #	Component	Item	# needed
FOUNDATION			
1	Bolt Cage	Pelco AP-1095-GLV	1 per pole
2	Foundation - WSDOT Plans: J-21.10-04 (non-curb mount *) J-20.11-02 (curb mount *)	Per Design	Per Design
STRUCTURE			
3	Pole Base with Collar	Pelco PB-5334 + PB-5325 (base + collar)	1 per pole
4	Pole (12' length for AC) (16' length for Solar)	Pelco - Spun Alum. Pole, Sch 40, PB-5100	1 per ea
5	J-Box w/conduits	Type 1 J-Box (Non-Skid in Sidewalk)	2 (one each for AC/ Solar unless existing box meets code.)

ID #	Component	Item	# needed
RRFB COMPONENTS			
6	Electronics Cabinet **	Slimline 100 Cabinet	1 per unit
7	Electronics Cabinet Mount	Eltec Pole Mount	1 per cabinet
8	Flashing Light Heads (4 lights per unit) <ul style="list-style-type: none"> • verification lights case by case - check with PW-Traffic Eng. 	Eltec RRFB (Whelen light heads)	1 unit per pole
9	Flashing Light Heads Enclosure	Eltec RRFB Pole Mount Light Enclosure	1 unit per pole
10	Flasher	Eltec FS-3 Flasher	1 per unit
11	Photocell	Silonex TO-5 Photocell	1 per unit
12	Timer	Crouzet Timer PU2R4	1 per unit
13	Toggle Switch (for putting system into flash mode manually)	(sized for application)	1 per unit
POWER – SELECT DC (SOLAR) or AC (HARDWIRE)			
DC (SOLAR) POWER			
14.DC	Solar Power Panel	Kyocera Solar Panel	1 per unit
15.DC	Solar Panel Mount (Pole Top Style)	Eltec Top Pole Mount	1 per unit
16.DC	Battery	UPG - UB121000 Battery	1 per unit
17.DC	Charge Controller	ProStar Charge Controller (PSM-15 or PSM-30 depending on No. of solar panels)	1 per unit
18.DC	Power cable for AC systems	Belden Part No. 601765 Cable	Varies depending on site distances
AC (HARDWIRE) POWER			
14.AC	Power Source (Determine Source for Project)	Meter head or Service cabinet (100A or 200A TBD)	1 Service
15.AC	Breaker for RRFB Cabinet (10A)	(Per Designer spec)	1 per System
16.AC	Power Supply	TDK-Lambda LS50-12	1 per System
17.AC	Surge Protector	Emerson/Edco SPA-100T	1 per System
18.AC	Power cable for AC systems	Opticon Model 138 Detector Cable	Varies depending on site
PEDESTRIAN PUSH-BUTTONS			
19	Pedestrian Push-Button Station ***	Polara Model XAVE2-LED Push Button Station	1 per unit
20	Pedestrian Push-Button Station Controller	Polara XAVCU2-DC Control Unit for XAV2E-LED Push Button Station	1 per unit

ID #	Component	Item	# needed
21	Remote Pedestrian Push-Button Mount Electrical Connection	8 wire multi-conductor cables/18 AWG Belden 27601A multi-conductor-600V (For remote push button)	Varies depending on site distances
22	Wireless Communication System (if no conduits being installed)	Banner SureCross DX80 gateway and nodes, 900 MHz	Varies (if 2 poles, gateway and node, if 3 poles, add extra node)
SIGNAGE			
23	Pedestrian Crossing Sign (Left Facing Icons) at crosswalks OR	Pedestrian Crossing Sign (Per MUTCD designation: W11-2 or S1-1) Check with PW-Traffic Eng. for crosswalk type.	2 per pole
	Trail Crossing Sign (Left facing icons) at trail crossings	Bicycle/Pedestrian Sign (Per MUTCD designation: W11-15) Check with PW-Traffic Eng. for crosswalk type.	2 per pole
24	Crossing Arrow Sign (Left)	Arrow Sign (Per MUTCD designation: W16-7pL) Check with PW-Traffic Eng. for crosswalk type)	2 per pole
25	Crossing Arrow Sign (Right)	Arrow Sign (Per MUTCD designation: W16-7pR) Check with PW-Traffic Eng. for crosswalk type)	2 per pole
26	Crossing Arrow Sign (Right) (if center island RRFB is used)	Arrow Sign (Per MUTCD designation: W16-7pR) Check with PW-Traffic Eng. for crosswalk type)	2 per pole
27	Advance Pedestrian Crossing Sign (Left Facing Icons)	Pedestrian Crossing Sign (Per MUTCD designation: W11-2 or S1-1) Check with PW-Traffic Eng. for crosswalk type.	1 per pole
28	Advanced Pedestrian Crossing Sign	"AHEAD" Sign (W16-9P)	1 per pole