



CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Suite 613, Portland, Oregon 97204 ■ Mingus Mapps, Commissioner ■ Michael Jordan, Director

M E M O R A N D U M

April 29, 2022

TO: Barry Manning-BPS

COPY TO: Elisabeth Reese Cadigan-BES

FROM: Kate Hibsichman-BES , Marie Walkiewicz-BES

RE: Montgomery Park to Hollywood Study – Summary of Technical Analysis

This memo provides an overview of the technical assessment BES has done thus far on the MP2H West side project area.

This area is served by combined sanitary and stormwater system in some areas, and separate sanitary and storm systems in other areas. Many of these systems were installed in the early 1900s, but there are also newer systems such as the combined sewer collector pipes in NW Wilson that were replaced in 2017. Most of the pipes are classified as being in good to fair structural condition, with a few being classified as being in poor condition.

Discharge from the combined system and the separated sanitary system flow to the Columbia Boulevard Wastewater Treatment Plant (CBWTP). The separated stormwater system discharges to the combined system and also flows to the CBWTP. During heavy rainstorms, the combined system may overflow to the Willamette River. This is estimated to occur about four times per winter and about once every three summers, on average. System modeling indicates that there is also a risk of the combined system backing up into basements and flooding out of maintenance holes during a 25-year storm event. Our analysis indicates that additional development doesn't increase the likelihood of these risks, if implemented per the Stormwater Management Manual. However, the proposed zone changes may increase the consequences of these risks because there will be more people living, working, and visiting in the area.

In terms of future stormwater management, strategies are generally limited to a combination of detention and conveyance approaches. Infiltration facilities, such as green street facilities and underground injection controls/sumps, are challenging in this part of the city due to low soil infiltration rates and the potential for soil contamination

due to past land uses. Lined vegetated facilities can provide water quality benefits and reduce peak stormwater flows, where infiltration isn't feasible. These can be used in rights of way and on development sites. Lined facilities, ecoroofs, and underground detention tanks are anticipated to be the most commonly used stormwater management methods for development.

BES conducted an analysis of the potential effectiveness of ecoroofs on reducing the area's system risks and found that use of ecoroofs in the area would reduce the risk of summer combined system overflows to the Willamette River, compared to current conditions. Because of this benefit and the additional public benefits of ecoroofs (see the [Central City Plan District](#)), we support BPS's inclusion of ecoroofs in the Urban Green Features within the proposed Vaughn-Nicolai Plan District.

The following describes the specific analyses conducted by BES and our findings:

Combined Sanitary and Storm System Risk

As was stated in BES's memo to BPS on 8/02/21 regarding Proposed Upzoning Modeling Results, the sewer pipe located in NW Nicolai St between NW 26th and NW 29th Ave currently lacks sufficient capacity to convey the 25-year design storm without pipe surcharging that leads to basement sewer backup risk (BSBR) and maintenance hole (MH) flooding risk, based on existing conditions. We also stated that the projected increase in sanitary flow added flooding risk at the three MHs between NW 28th and 27th Ave. We have since done additional modeling that indicates that if stormwater is detained from all redeveloped impervious surfaces, per the 2020 Stormwater Management Manual, the risk of flooding at these MHs does not increase from existing conditions.

Sewer System Risk

BES provided BPS with maps (12/10/20) showing various components of current sewer system risk. The proposed increased zoning density falls in areas BES has identified as having existing capacity deficiencies and basement sewer backup risk. As was stated in the memo sent to BPS on 8/02/21 regarding Proposed Upzoning Modeling Results, the projected upzoning can be accommodated within the existing sanitary system.

Storm System Risk

BES provided BPS with maps (12/10/20) showing various components of our current stormwater system risk. Parts of the proposed streetcar track alignment and areas where increased zoning density is proposed are in areas with medium-high landslide susceptibility and the potential for fairly high landslide risk due to unmanaged or ineffectively managed stormwater flows. Special consideration should be given to stormwater management strategies in this area to avoid exacerbating these conditions.

Resiliency

BES previously provided BPS with maps (12/10/20) showing various resiliency considerations. The northern part of the project area has higher existing urban heat island risk due to extensive impervious area. Given the history of fill in the area, soil conditions and proximity to the river, BES suggest geotechnical analysis be done to assess the potential risks in the area due to landslide or earthquake. To mitigate urban heat island impacts, investments in green infrastructure and tree planting should be

prioritized, particularly when changing land uses to increase the number of people living and working in the area.

Maintenance

BES previously provided BPS with a list of various maintenance considerations along with a draft memo (12/14/20) regarding identifying assets that would potentially need to be moved, replaced, or rehabilitated due to proximity to light rail tracks. There are multiple locations where intersections with MHs will be impacted; those locations are some of the biggest issues, both for the MH's themselves and for the mains that connect to them. We assume that there would be two sets of rails, one for each direction to and from Montgomery Park, as shown on page 61 of the Montgomery Park Area Transportation Plan. There are multiple locations where we may need to relocate mains and maintenance holes to avoid conflict with proposed tracks. On NW 23rd from Raleigh to Xavier, there is a 24" main down the middle of NW 23rd that may need relocation either to the west or the east side of the road. On NW 23rd from Thurman to Vaughn, there is a 12" main on the west side of NW 23rd that may need relocation. On NW 23rd from Vaughn to Roosevelt there is a section of 36" main that may need to be relocated. BES assumes that all required BES relocations will be at project cost and will be made part of the project scope.

BES CIP work in the project area

The following projects are planned to be constructed soon:

Name, Project Number	MP2H plan area impacted	Anticipated construction
Slabtown North, E10692	Adjacent to planned transportation work	2024-2025
South Tanner, E10028	Northwest Plan District	2024-2026
East Nicolai, E08658	Northwest Plan District	2025/2026-2027/2028

Please let us know if you have any questions about our analysis. We look forward to continuing to work together on this project.