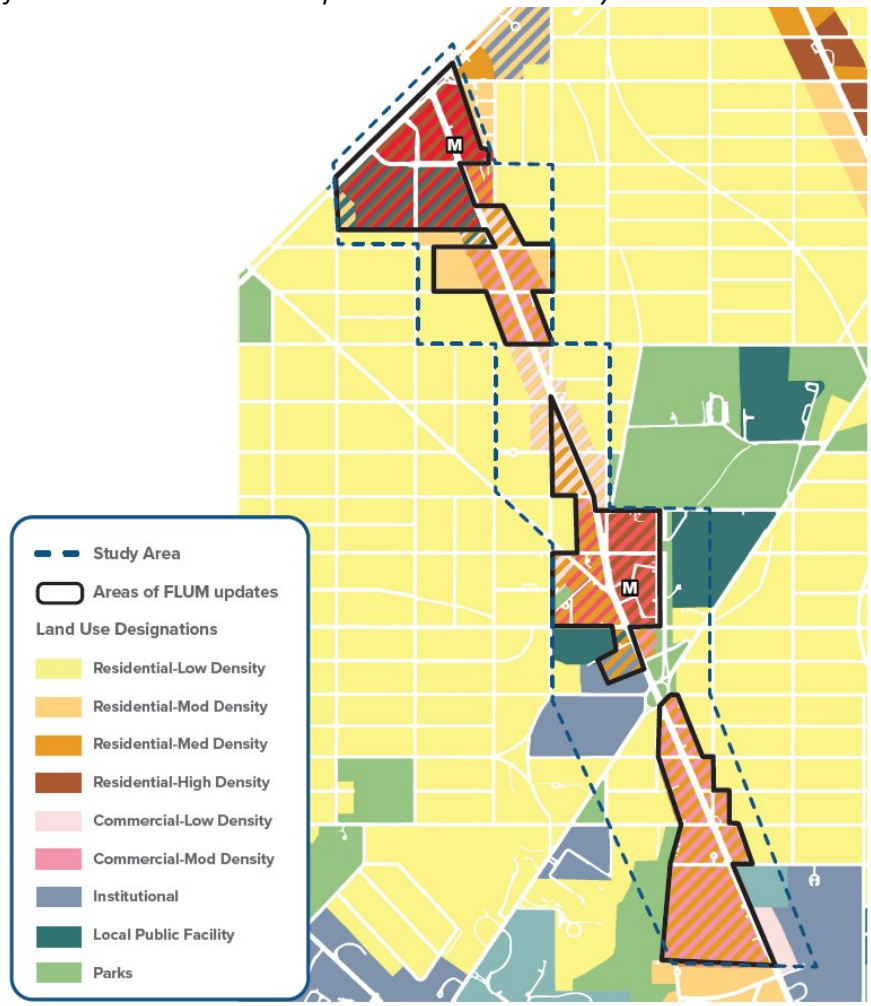
Wisconsin Avenue Development Framework:
Infrastructure Assessment

March 2024

Executive Summary:

This infrastructure assessment,[1] prepared in connection with the *Wisconsin Avenue Development Framework,* evaluates infrastructure demand and capacity in the upper Wisconsin Ave NW Corridor. The Comprehensive Plan (Comp Plan) envisions an increase in population and households, and a decrease in jobs within the study area. These new residents will likely increase the demand for electricity, water, multimodal transportation, and solid waste management.

Figure 1: *Map of Wisconsin Avenue Development Framework study area and Future Land Use Policies.*



The increased demand for infrastructure systems identified in this assessment is anticipated to occur within the next 25 years and beyond, the time horizon of the District's long-range population, households, and jobs forecast.[2] Infrastructure is planned over the long term (a period that ranges from ten years to more than fifty years depending on the system) and is updated on an annual basis as needs evolve.

When comparing future demand to existing infrastructure, it is important to note:

- Infrastructure planning occurs through well-established processes that the District and regional utilities use to ensure infrastructure systems are continually improved to meet demand.
- The District has a six-year Capital Improvement Plan (CIP) that funds transportation improvements and waste management facilities. The CIP is updated annually.
- Regional utilities and authorities, including WMATA, Pepco, and DC Water, use long-range population and employment forecasts to ensure the District's current and future residents and businesses can access clean water, electricity, and public transportation.

This assessment does not account for the economic feasibility of construction or market conditions that would indicate when development might occur. Additionally, this assessment does not consider how changes in technology or consumer preference could impact future infrastructure demand. For these reasons, this assessment should not be interpreted as a development forecast but rather as an exercise to evaluate infrastructure improvements that could be needed over the long term.

Analysis Overview:

This assessment has two components:

- Demand Assessment – an evaluation of how new real estate development could impact infrastructure use. This assessment was conducted by the Office of Planning (OP).
- Capacity Assessment – an evaluation of existing infrastructure to determine if it can accommodate potential new demand. Utilities and District agencies provided OP with information about the capacity of the infrastructure they manage.

The assessment looks at three scenarios to understand how potential new development could impact infrastructure:

1. The Baseline Scenario evaluates the study area's existing conditions. OP estimated the current population, and the number of households and jobs based on gross building area (GBA) within the study area. Using industry-standard factors, OP also used GBA to estimate current infrastructure demand based on area, density, and occupancy by each parcel's land use classification.

2. The Theoretical Full Buildout Scenario estimates households, populations, jobs, and infrastructure demand using the theoretical maximum GBA under the 2021 Comp Plan's Future Land Use Map (FLUM) for every property with any additional building capacity within the study area. For this scenario, future GBA estimates are derived from OP's land use capacity analysis. This scenario is very unlikely to occur because it will be financially infeasible for many of these sites to redevelop as this scenario envisions, and redevelopment of some sites will be limited by factors that are not considered, such as challenging site conditions including steep slopes and irregular parcel shapes.

3. The 2021 FLUM Buildout Scenario estimates households, populations, jobs, and infrastructure demand generated by properties within the study area where FLUM land use designations were updated as part of the 2021 amendment to the Comp Plan (see figure 1). These are the areas where land use policy is most likely to result in changes in use and intensity. For this scenario, the future theoretical GBA estimates are derived from a maximizing the development potential of zoning recommendations from the Wisconsin Avenue Development Framework.

All three scenarios include large redevelopment projects currently planned, under construction, or recently completed within the study area.[3] The estimates generated for both future scenarios are greater than the District's long-range forecast, which covers a 30-year period (2020-2050). Based on the District's long-range forecast, the growth in population and households and infrastructure demand would likely extend beyond 2050.

Demand Assessment:

OP estimated infrastructure demand for the *Wisconsin Ave Development Framework* study area. Metrics used to evaluate infrastructure demand include:

- Electricity Demand – *Kilowatts (KW)*[4]
- Water Demand – *Gallons consumed per day (gal/day)*
- Waste Generation – *Pounds produced per day (lbs. /day)*
- Trip Generation and Attraction[5] – *Frequency of person trips per day*[6]. Trips includes mode split during peak hours for trips made by transit (bus and metro), walking, biking, and vehicles.[7]

Tables 1 and 2 provide an overview of the demand assessment results for the Baseline, Theoretical Full Buildout, and 2021 FLUM Buildout scenarios.

Table 1: *Infrastructure demand by scenario. All estimates are rounded to the nearest hundreds place.*

Scenario	Households	Population	Jobs	Electricity (KW)	Water (gal/day)	Waste (lbs./day)	Trip Gen (person trips/day)
1. Baseline	3,000	4,200	10,300	42,000	1.4 M	55,000	168,900
2. Theoretical Full Buildout	13,100	18,100	6,300	90,600	3.5 M	129,900	176,800
% Change from Baseline	330%	333%	-54%	116%	146%	134%	4%
3. 2021 FLUM Buildout	11,800	16,400	4,700	87,900	3.3 M	127,100	176,400
% Change from Baseline	288%	294%	-39%	109%	128%	129%	3%

Table 2: *Trip generation and attraction with mode split by scenario. All estimates are rounded to the nearest hundreds place.*

Mode	Transit (people/day)	Walk (people/day)	Bike (people/day)	Vehicle (vehicles/day)[8]
Mode Split	35%	17%	3%	45%
Scenario				
1. Baseline	59,100[9]	28,700	5,100	64,400
2. Theoretical Full Buildout	61,800	30,000	5,300	67,300
Net Increase from Baseline	2,700	1,300	200	2,900
3. 2021 FLUM Buildout	61,200	29,700	5,200	66,700
Net Increase from Baseline	2,100	1,000	100	2,300

Capacity Assessment:

For the capacity assessment, OP requested input from District agencies and utilities to understand current system capacity for each infrastructure category and the process for capital improvement planning that can meet future demand.

Pepco (electricity capacity): Pepco anticipates that the current infrastructure along Wisconsin Avenue would have enough capacity to support the full buildout and 2021 FLUM buildout scenario for the Wisconsin Avenue Development Framework, based on the demand assessment developed by OP. Pepco does not anticipate including projects in their current capital improvement plan to absorb the new demand presented in this assessment because the current infrastructure along Wisconsin Avenue would have enough capacity. However, Pepco conducts an annual forecast of the distribution system by analyzing the predicted load versus capacity for each feeder and substation to identify any planning criteria violations within the next ten years and determines actions to mitigate the violations, if any. Some ways Pepco mitigates those violations are with the addition of new substations, transformers, feeders, and non-wired alternatives.

DC Water (sewer and water capacity): The Wisconsin Avenue Development Framework study area's existing local sanitary sewer systems are running at full capacity. The wastewater generated by future developments may impact some local sanitary sewers. The existing water system in this area is also running at full capacity. Developers should work with DC Water to ensure there is adequate capacity to serve new development. Currently, DC Water has one capital improvement planned for the area, which includes small diameter water main along Wisconsin Ave, NW from Fessenden St, NW to Western Ave, NW.

District Department of Transportation (DDOT) (transportation systems capacity): Land uses along Wisconsin Avenue are anticipated to continue transitioning from commercial (including office and retail) to residential, with additional residential density. Over the long-term, the District anticipates that this corridor will generate about as many overall trips as it does today because apartment buildings generate fewer trips than comparable office and retail buildings. Most future housing capacity along Wisconsin Avenue is targeted within ¼-mile from a Metro station entrance, which may lead to an increase in local

transit ridership over time. DDOT's Development Review Program will evaluate the impacts of land development actions and public use on the District's multimodal transportation network as specific properties develop in the future. Additionally, the District's public space permitting process ensures development actions improve the safety and experience for people walking and biking on public rights-of-way.

DC Department of Public Works (DPW) (waste management capacity): The new development considered in this analysis would not have a serious impact on current waste management capacity. DPW manages solid waste removal for residential structures with four or fewer units. New development would almost exclusively produce buildings with more than four units or buildings with commercial, industrial, and civic uses. Property owners for these new buildings would be responsible for procuring private waste management services, which are readily available.

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[1] The District's Comprehensive Plan (Comp Plan) calls for planning within Future Planning and Analysis Areas (FPAAs) to evaluate how changes to the Future Land Use Map (FLUM) could affect infrastructure at full buildout. For this analysis, "full buildout" refers to a property maximizing the available gross building area based on the lot size and floor-area ratio (FAR) allowed under existing or future land use designations. See Appendix A for the study area Geography and Future Land Use Policy Maps.

[2] OP prepares a long-range (30 year) forecast of job, household, and population growth approximately every two years for the Metropolitan Washington Council of Governments' (COG) regional transportation planning efforts.

[3] The development projects included in this assessment are the Friendship Center PUD, Former Mazza Gallerie, Former Fox5, Broadcast PUD, Dancing Crab PUD, Upton Place, and City Ridge.

[4] OP developed estimates for existing and future electricity demand, in kilowatts, using general electricity demand rates typically used in the Washington DC area.

[5] The demand assessment for transportation utilizes *trip generation* and *trip attraction*, which differs from *Annual Average Daily Traffic (AADT). AADT* Takes in all vehicle trips on a segment of road or highway during a yearlong interval in both directions and then divides the total by 365 days to arrive at the average number of daily trips. On the other hand, *trip attraction* and *trip generation* predict the number of trips originating or destined for a particular area.

[6] *DDOT's multi-modal approach to site-level development is to view trip generation in terms of person-trips rather than vehicle-trips. See DDOT's Guidance for Comprehensive Transportation Review for details.*

[7] DDOT provided OP with estimations for mode split for the Wisconsin Avenue Corridor.

[8] Vehicle trips per day assume a vehicle occupancy rate of 1.18 passengers per vehicle based on DDOT's Guidance for Comprehensive Transportation Review.

[9] Baseline transit trips are not based on the WMATA ridership data from Metro or bus services. Additionally, these estimates do not account for the significantly reduced ridership in 2021 due to the COVID-19 pandemic.