CITY OF LOS ANGELES

CALIFORNIA

DEPARTMENT OF
PUBLIC WORKS

BUREAU OF
STREET LIGHTING

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October 16, 2024

The Honorable City Council
City of Los Angeles, Room 395
c/o City Clerk's Office
Los Angeles, CA 90012

Dear Honorable Members:

SUBJECT: COUNCIL FILE # 23-0661- RELATIVE TO ISSUES RELATING TO THE CITY'S STREETLIGHT NETWORK ON LED STREET LIGHT FIXTURES, OUTAGES, COPPER WIRE THEFT, VANDALISM AND MAINTENANCE IN COUNCIL DISTRICT 8 AND MYLA311 RESPONSE

The Bureau of Street Lighting's core mission is clear: maintain the operation of the city's 223,000+ street lights and keep the streets of Los Angeles well-lit. In less than a decade, however, this mission has become significantly more challenging as theft and vandalism incidents on our network have more than ten (10) fold, a new normal of all time highs – leaving whole neighborhoods in the dark for months while extensive – and expensive – repairs can be completed. Thankfully, with the support of the Mayor and City Council, the Bureau has recently been able to take a much stronger approach to resolving and preventing theft and vandalism incidents. In the past year, the Bureau's new program of strategic fortification has had a 90% success rate in terms of preventing repeat issues, and new pilot projects using solar-powered and battery-enabled streetlights are promising alternatives that are both sustainable and resilient.

Unfortunately, the Bureau's long-term viability is threatened by more than just bad actors, with fundamental challenges at the core of the Bureau's operational model that must be addressed. While theft and vandalism incidents often result in dramatic outages, requiring more labor-intensive and time-consuming repairs, they also come at a steep financial cost. In FY 23/24, 40% of all repaired outages were directly linked to theft and vandalism, accounting for more than 50% of direct repair costs. Most of our calls for service fall into our general category of regular maintenance – issues like burned out fixtures, failing fuses, or rusted components. Many Bureau assets are nearing their 100-year mark and are succumbing to the wear and tear of a century of service, while others, like LED luminaires, are designed to last only a decade and are now in need

of replacement. It is also worth noting that as we continue to fortify our lighting infrastructure against theft and vandalism, it naturally makes our infrastructure less accessible to our own crews, complicating and extending tasks that were once simple and quick.

Regular maintenance like that described above is intended to be covered by the Bureau's annual assessment revenues. But these revenues have averaged at around $43.5M since 1996 despite more than 90% in cumulative inflation. As some examples of how this continuous decline in real revenue has affected service: the Bureau has not had a funded pole replacement program since the Great Recession, and the Bureau lacks the resources to replace the nearly 82,000 first generation LEDs that are currently reaching end-of-life.

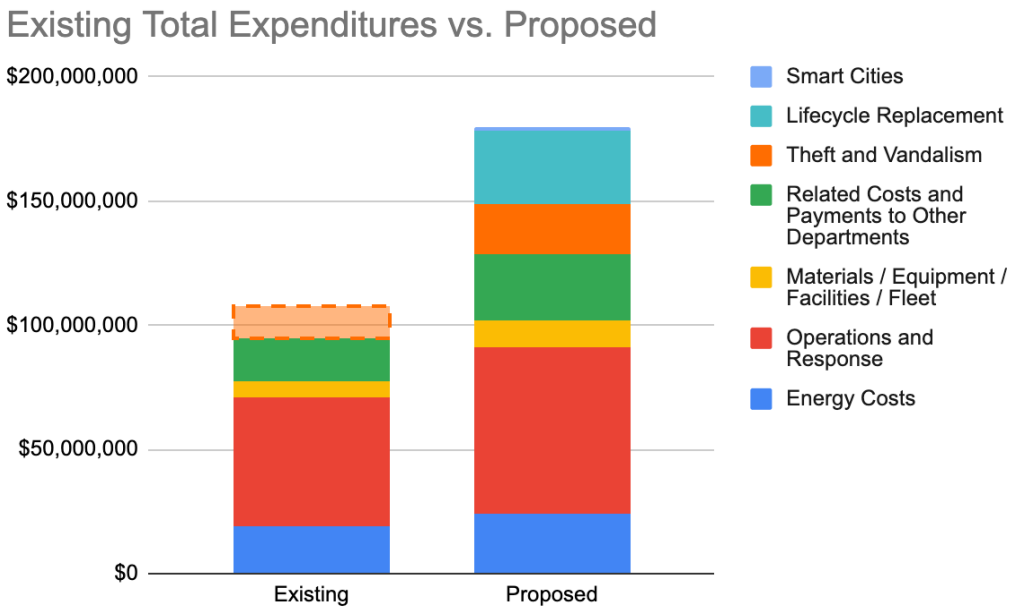
With the support of recent investments by the Mayor and City Council that are above the Bureau's standard core Assessment revenues, we've made progress. However, there is a clear need for further investment in operational infrastructure to meet current and projected maintenance demands. Necessary items such as new/expanded yards, additional vehicles, and more staff cannot be made without additional funding. The Bureau is committed to ensuring the longevity of our infrastructure and preventing potential future crises, but we can no longer ignore the difficult choice that must be made between expanding the Bureau's resources, or significantly reducing the scope and services of the Bureau.

BACKGROUND

The Bureau of Street Lighting (BSL) designs, constructs, operates, and maintains over 223,000 streetlights in the City of Los Angeles, illuminating two thirds of the city's 470 square miles. This vast system is interconnected by approximately 9,000 miles of conduit and 27,000 miles of copper wire, and is powered by 13,000 DWP service points. Maintenance of this expansive network falls to a dedicated field staff of about 200.

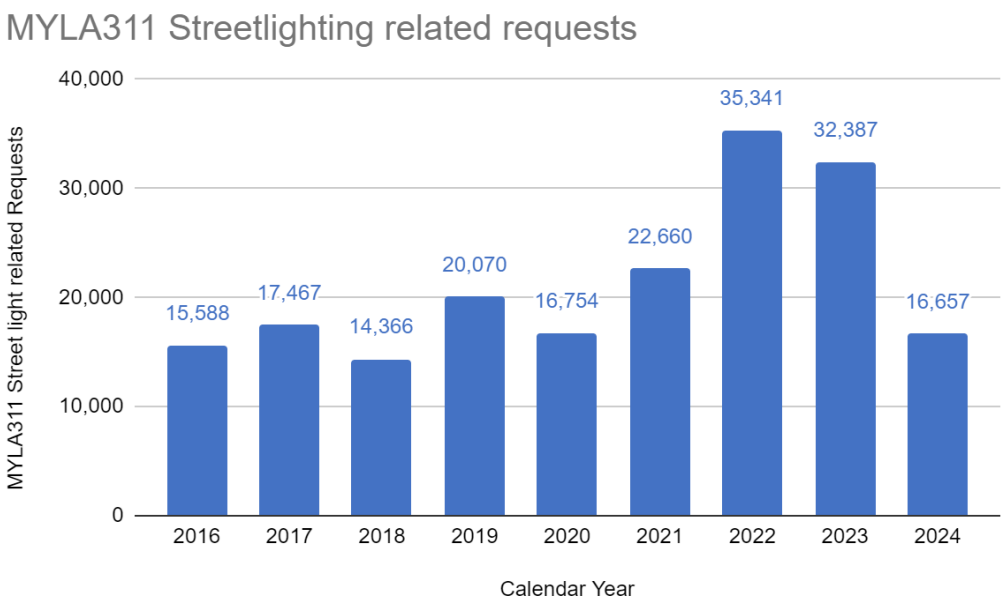
The Bureau's revenue for operations rely predominantly on an Assessment structure, of which 90% has been frozen since 1996. Any adjustments to the terms of this assessment require the approval of a majority of the *benefitting property owners* of the street lighting infrastructure, weighted by estimated value to the property. The total revenue from this assessment has hovered around $45M for the past two and a half decades.

To truly support comprehensive, sustainable operations and address current and projected needs, BSL has developed a 10-year fiscal and operational plan that estimates a need for an annual assessment revenue of $125M. This figure, an almost tripling of BSL's current annual assessment revenue of approximately $46M, is necessary to cover current one-time funding sources and to expand to meet the true scope of work needed to manage and sustain the operation of our infrastructure. Most notably, this includes formalizing an ongoing theft and vandalism program, reconstituting pole and conduit replacement programs, and establishing a routine LED lifecycle replacement program. Details will also be provided in the **GENERAL MAINTENANCE AND TIMELINE** section of this report.



GROWTH OF 311 INCIDENTS

In order to discover lighting outages, the Bureau primarily relies on residents and businesses to report street lighting issues to MYLA311 or by calling 3-1-1. Most interactions are with the City Call Center through ITA, as the Bureau itself does not employ a 2nd level call center. Each report is channeled into BSL's Asset Management System (AMS) where incidents are tracked and the Bureau's response is managed. Since 2016, there has been a marked increase in street lighting-related requests originating from MYLA311, especially in the past two years.



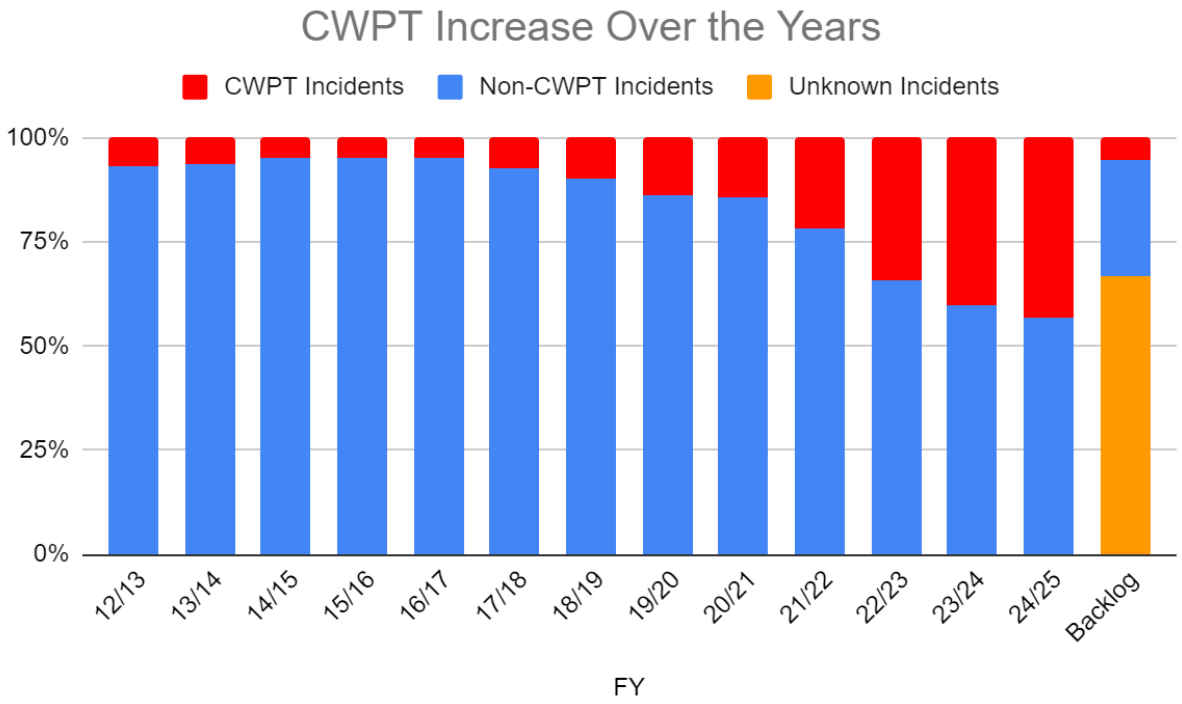
GROWTH IN COPPER WIRE AND POWER THEFT AND VANDALISM

Over the past decade, theft and vandalism have increasingly contributed to street light outages, significantly impacting response times due to the extensive work required to restore operations after such incidents. In Fiscal Year 23/24, BSL recorded 9,825 theft and vandalism incident requests accounting for 30% of all street lighting incidents reported within the respective fiscal year. These incidents led to approximately more than 30,000 light outages citywide. It should be noted, however, that the actual incidents of theft and vandalism, once inspected, verified, and repaired, are higher than is initially reported by 311, which results in the Bureau's 40% figure of all incidents being related to theft and vandalism.

As our Field Operations Division (FOD) crews address the backlog of street lighting issues and inspect affected circuits, we've found that many incident types have been misreported or misclassified by constituents. Accurate classification can only be determined after a full inspection and repair of the street lighting circuit.

The chart below highlights a significant and steady rise in CWPT-related repairs over the years. Prior to FY 20/21, these repairs accounted for an average of 5% of all street lighting incidents, with the majority being categorized as general maintenance. However, from FY 20/21 to FY 24/25 (YTD), CWPT-related repairs have surged, now representing an average of 31% of all repairs, with FY 23/24 alone reaching a notable 40%, and FY 24/25 (YTD), increasing further to 43%. This upward trend is expected to continue as more incidents are resolved, accurately classified, and reflected in our system through the remainder of the fiscal year.

A critical factor to highlight is the backlog of unresolved incidents. At the time of this report, 22,503 incidents remain pending resolution, with 5% pre-classified as CWPT, 28% as maintenance, and 67% under unknown issue types. As repairs are finalized and incidents are properly categorized within our maintenance system, it is expected that a significant number of those currently classified as maintenance or unknown will be reclassified as CWPT.



As mentioned previously, theft and vandalism incidents are more costly and time intensive than other incidents. It takes a two-man crew an average of 30 minutes to replace a burnt-out or failing light fixture; by comparison, it takes an 18-person crew an average of 8 days to fortify a 22-light circuit that has been damaged by copper wire theft. These longer job times mean higher cost: the average direct cost to the Bureau per theft and vandalism incident is more than four times the average of a non-vandalism issue, based on two months of using the Bureau's newly-updated AMS system which allows for incident cost accounting.

However, the much longer average job times for theft and vandalism incidents are not immediately discernible in the average response time by incident table below. This is due to the fact that the Bureau prioritizes CWPT incidents over other incidents because of the liabilities they create and the large areas that they affect (a single incidence of copper wire theft on one pole can take out an entire circuit of lights). The observed effect of long CWPT job times is therefore higher response times across the board for all incident types.

Average Response Time to Complete Incident - Days								
Incident Type	**FY 16/17**	**FY 17/18**	**FY 18/19**	**FY 19/20**	**FY 20/21**	**FY 21/22**	**FY 22/23**	**FY 23/24**
Single Light Out	5	7	10	21	30	44	89	128
Multiple Lights Out	9	16	21	37	35	47	103	146
Copper Wire Theft	12	21	35	62	38	55	127	110
Power Theft *	N/A	N/A	N/A	N/A	23	47	82	99
Post Hit **	58	69	118	152	109	168	190	255
Conduit Hit	4	19	24	33	18	22	44	83

It is also important to understand that the original architecture of the street lighting maintenance division, coupled with the AMS, was crafted with a focus on basic, routine maintenance tasks. This primarily covered responsibilities like replacing damaged or non-functional luminaires, PE cells, fuses, conduits, and poles.

The impact of CWPT on BSL response capacity has prompted the establishment of a specialized maintenance subgroup known as "Vandalism." This team specifically tackles the extensive damage stemming from Vandalism and CWPT, challenges that were not part of the original maintenance scope.

GENERAL MAINTENANCE PLAN AND TIMELINE

As noted earlier in this report, the Bureau's current funding and operational structure cannot support a regular, proactive maintenance plan necessary to adequately support the City's network of a quarter of a million lights. Currently, the Bureau's resources are necessarily aligned to support reactive maintenance and incident response, especially given the unprecedented scale of theft and vandalism in recent years.

However, the Bureau is well aware of the deferred maintenance needs of our infrastructure and has undertaken an holistic assessment of our assets and operations. Last year, the Bureau submitted a report containing a 10-year Fiscal and Operational Plan plan that quantifies the annual needs for general maintenance. This plan is based around four pillars: maintenance, system protection, lifecycle replacement, and support services. The key items within each pillar are summarized in the table below:

Type of Maintenance	Program Name	FY23/24 Resources	Annual Need	At Risk Infrastructure
Lifecycle Replacement	Pole Replacement	0	1,000	12,000

Lifecycle Replacement	Conduit Replacement	0	20 miles	200 miles
Lifecycle Replacement	LED Replacement	1,600	20,000	82,000
System Protection	Fortification	3,000	6,000	N/A
System Protection	Controllers / Sensors, cameras	2,000	26,000	N/A

While the Bureau continues to focus on maintenance and system protection, it is necessary to address deficiencies in our infrastructure that require additional investments. Lifecycle replacement programs, currently unfunded, must be reintroduced as many of our poles and conduits are nearing or surpassing the 100-year mark. Currently, the City of Los Angeles has approximately 220,000 existing street lighting poles with 11,570 of these being 75 years or older.

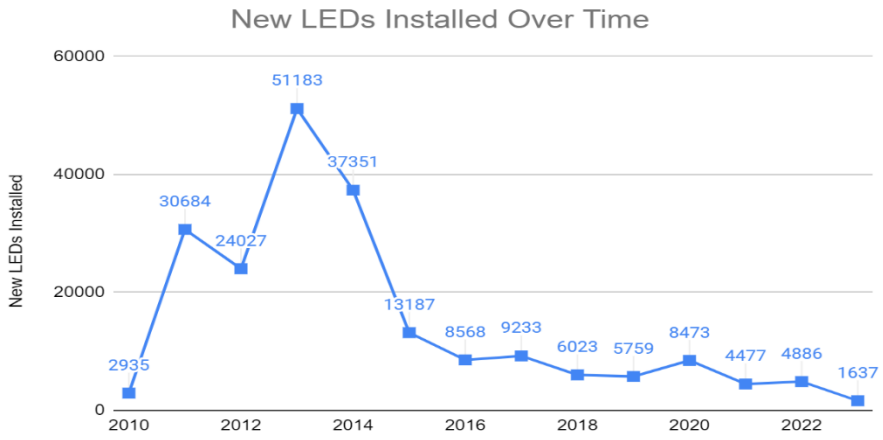
Due to their age, many of these poles do not have the protective measures that are now commonplace and required for newly manufactured poles. Without protective measures, such as galvanizing, these poles have been affected by excessive corrosion and other damage related to their age. Prevention of injuries and future liabilities is of utmost importance to the Bureau and a more proactive approach in updating and replacing its aging infrastructure is needed. Recent lawsuits and litigations have cost the City over $22M due to failures in the street lighting infrastructure. Under the FY 24-25 Pole Replacement budget request, **the goal of the Bureau is to replace approximately 1,000 poles each year over the next ten years.** By replacing these poles, the City can reduce personal and property damages claims due to structural failures, provide poles that would be more adequate for banner attachments, modernize an aging and outdated infrastructure, and provide the community with more durable and aesthetically pleasing streetlights.

The area of system protection, which the Bureau has begun building over the past two years, also requires a major expansion to move beyond pilot projects and to start fortifying a substantial portion of our network within the most hard-hit areas for theft and vandalism. Additionally, it should be noted that any General Maintenance Plan that the Bureau undertakes under the threat of theft and vandalism will also need to augment general maintenance due to system fortification, which increases the complexity of repairs and often requires heavy machinery to access service components. Finally, as BSL's roles and strategies evolve and expand, so too does our need for support and administrative services, both internally and externally, to ensure staff and bureau capabilities can keep up with evolving demands.

LED Fixtures & Replacement

BSL successfully completed Phase I of its 1st Gen LEDs Conversion program between 2009-2013, transitioning 140,000 modern/cobrahead streetlight fixtures to energy-efficient LED units, with the goal of reducing costs and energy use. After completing Phase 1, BSL continued to convert its streetlights to LEDs and today has over 90% of its system using LED fixtures. It has

been widely successful – without the extensive use of LEDs throughout the Bureau's street lighting network, energy costs would be an additional $10M per year. In other words, more than half of the Bureau's Assessment revenues of $45M would go to pay for power use alone.



When compared to the High-Pressure Sodium lights they replaced, LEDs have a considerably long expected lifespan of 10 years. This, however, means that 140,000 LED fixtures are now near or beyond its expected lifespan and at risk of failure, with nearly 60,000 fixtures over 11 years old. And interestingly, there's been a surge in lighting upgrade requests specifically for areas outfitted with 1st Gen LEDs, which can coincide with dimmer lights due to age and lights nearing failure.

To address this, the Bureau proposed and was funded for a replacement of 18,000 LED fixtures in FY 22/23. This was the start of a 10/10 program: 10% of the system replaced each year for ten years. For Council District 8 specifically, 7,256 fixtures were replaced. Unfortunately, for fiscal year FY 23/24, we only received one-tenth of the requested program budget resulting in only approximately 1,800 lighting fixtures scheduled to be replaced. None was scheduled for CD 8. And in FY24/25, the Bureau received enough funding to replace approximately 4,000 LED fixtures. In order to meet our 10/10 program, an additional 30,000 fixtures would be need to be replaced.

Report on Staffing and Crews dedicated to Streetlight Maintenance

The Bureau of Street Lighting (BSL) proudly maintains a steadfast and specialized team overseeing Streetlight Maintenance. A blend of Administrative and Field Staff ensures optimal operational efficiency. BSL's Field Operations has a total of approximately 200 staff to manage all street lighting operations throughout the City. The Maintenance field teams are split into six (6) geographically based Districts and one Inspection District, which has recently been added. Entrusted with the significant task of maintaining over 223,000 streetlights, these crews draw logistical and administrative support from a nine-member Field Operations Administrative Staff and a triad of warehouse personnel, courtesy of GSD.

The Maintenance Districts are generally made up of Electrical workers and trainees, but are also composed of cement workers, laborers, and welders.

The Bureau estimates that an additional 52 positions are needed in various classifications to be fully staffed to meet the maintenance needs and to provide adequate service levels to residents throughout the City.

Since the inception of the Targeted Local Hire and Bridge to Jobs Programs, the Bureau has made it a priority to hire through these programs when possible. In 2018, due to a lack of authorized job classifications and positions authorities within BSL that were associated with Targeted Local Hire, the Bureau requested that the Personnel Department add the classification of Electrical Craft Helper (ECH) Trainee to the program. ECH Trainee was added to the Bridge to Jobs program and available for use in 2023, and the BSL has hired exclusively from it since.

TARGETED LOCAL HIRE		
Classification	**Current # of Authorities**	**# hired through program since inception**
Administrative Clerk	4	6
Maintenance Laborer	6	9
Warehouse and Toolroom Worker	2	2
BRIDGE TO JOBS		
Accounting Clerk	4	3
Electrical Craft Helper	64	68
Maintenance & Construction Helper	10	0
Cement Finisher Worker	7	6

Unfunded Universal Broadband Projects

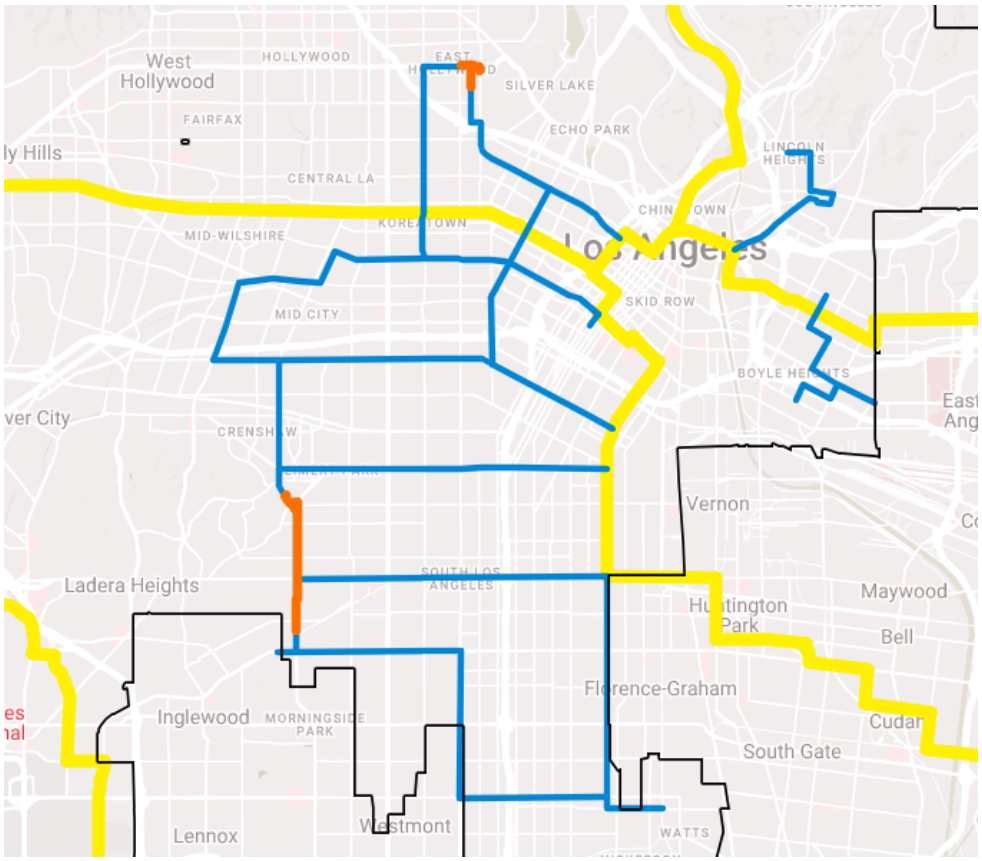
From extensive discussions with subject matter experts over the past year and a half, the Bureau has learned that the most effective and efficient way that that it can support regional digital inclusion efforts and facilitate a more connected city is through the installation and maintenance of shared-access fiber-optic conduit within the Bureau's right-of-way on city streets. This neighborhood-level infrastructure would facilitate connections for private, non-profit, and public

internet service providers (ISPs) to the State's forthcoming statewide Middle Mile Broadband Initiative fiber network.

The industry term for this type of fiber infrastructure is "Metro Middle-Mile," but we in the Bureau informally refer to it as "Penultimate Mile" because it exists to bridge the gap in publicly-owned open-access fiber between the State's forthcoming highway-scale middle-mile network and the "Last Mile" final internet connections to individual addresses (which are built and maintained by internet service providers). Due to the Bureau's almost 100 years of experience with underground conduit and the fact that we can build infrastructure in the sidewalk without permits or traffic disruptions, we are able to deliver this Metro Middle-Mile at a significant time and cost advantage compared to standard private sector approaches. To date, the Bureau has constructed approximately ⅔ of a mile of fiber optic conduit within the East Hollywood neighborhood adjacent to our service yard and ⅓ of a mile along the Crenshaw Corridor (a total of approximately 1 mile), at a per-mile cost that is approximately 40% of State estimates for conduit infrastructure costs in LA's dense urban environment.

Without the Bureau's cost-effective "Penultimate Mile" investments, the impact of the State's infrastructure investment will be minimized by the need for non-traditional internet service providers (such as cities/counties, community ISPs, or ISPs using innovative startup technologies) to lease existing privately-owned fiber – which can be cost-prohibitive especially for low-revenue equity-driven efforts. The Bureau is well-situated to provide the piece that completes an "end-to-end" public middle-mile network which would have major implications for leveling the playing field and increasing the number of public and private providers in Los Angeles. This publicly-owned middle-mile network will also be key to ensuring that municipal-level connectivity projects like the County's forthcoming $30M+ Community Broadband Networks in South LA and the Eastside can be sustained beyond the initial project term.

The Bureau has developed a draft initial Metro Middle-Mile network for discussion and proposal purposes. Yellow indicates the forthcoming State Middle Mile Broadband Initiative routes, blue indicates BSL-proposed segments that would provide "Penultimate Mile" connections to our most under-connected communities, and orange indicates projects that are complete or in planning stages.


West Hollywood
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SILVER LAKE
FAIRFAX
ECHO PARK
CENTRAL LA
MID-WILSHIRE
KOREATOWN
MID CITY
SKID ROW
BOYLE HEIGHTS
CRENSHAW
Vernon
Ladera Heights
SOUTH LOS ANGELES
Maywood
Bell
Florence-Graham
Inglewood
MORNINGSIDE PARK
South Gate
Lennox
Westmont
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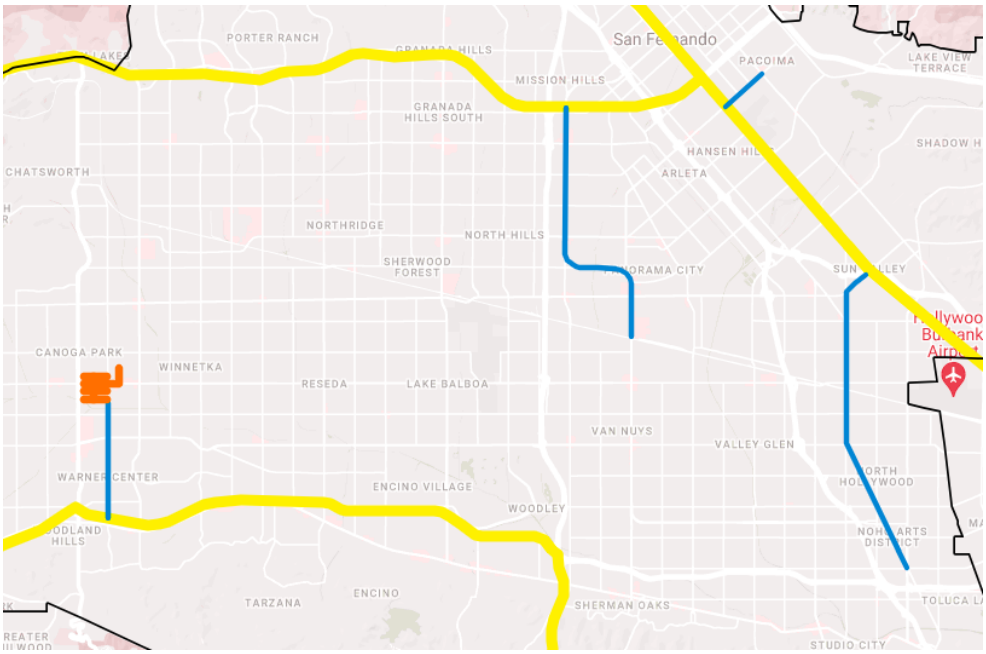
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NORTH HILLS
SHERWOOD FOREST
CANOGA PARK
WINNETKA
RESEDA
LAKE BALBOA
VAN NUYS
VALLEY GLEN
WARNER CENTER
ENCINO VILLAGE
WOODLEY
TARZANA
ENCINO
SHERMAN OAKS
STUDIO CITY

State and Federal Funding Opportunities

The Bureau's initial objective had been to seek forthcoming State and Federal funding opportunities to construct this network. However, recent decisions and communications from the State have indicated that these funding sources hold very little promise for the City given the administrators' adherence to strict eligibility definitions that severely limit the scope of projects. The major Federal and State grant opportunities are restricted to providing service to locations where none currently exists – or what is referred to as "unserved" locations. Even in neighborhoods where many residents cannot afford existing offerings, if broadband services are technically available for a location then the location is considered "served."

As expected, there is a major mismatch between this type of eligibility and the digital divide need in Los Angeles. In Council District 8, for example, 26,450 households, or a third of all district households, do not have home broadband. However, only 1,703, or 3.5%, of "locations" in the district are considered unserved (most of which are loosely dispersed and primarily found along business corridors). This lack of scale and density of unserved locations means that any proposed projects would be extremely small in scope (in the range of 20 or so households) and would require too much subsidy per location to be considered competitive. The Bureau has been involved in advocacy efforts to challenge the eligibility criteria but the consensus among partners is that these decisions are more or less final.

Other Approaches to Building the "Penultimate Mile"

<u>FY24-25 Budget and Joint-Build Projects</u>

As part of its FY24-25 Budget package, BSL is requesting an expansion to its existing Fiber Optic Conduit Installation Program which would lay the foundation for a long-term-sustainable program that does not require ongoing subsidy. Upfront investment is necessary in FY24-25 to expand the Bureau's capacity to deliver fiber optic infrastructure at scale, enabling the Bureau to take on partnership projects that would bring new construction and leasing revenue that can be reinvested into the growth of the network.

Due to our low per-mile infrastructure costs, the State has initiated discussions with the Bureau around the potential for BSL-built projects to stretch limited State funding and maximize the number of miles of open-access fiber within the City. Additionally, the Bureau is expected to be in high demand as a builder/provider of connections from last mile providers to the State network. For joint-build projects like these, the City would maintain ownership of the main conduit and be able to put excess conduit capacity to use for City purposes or leasing opportunities that could generate revenue for the program. This would mean the Bureau could continue to expand City-owned fiber throughout the City, helping to bridge the digital divide and provide high-speed connectivity for SMART City operations in the Right of Way.

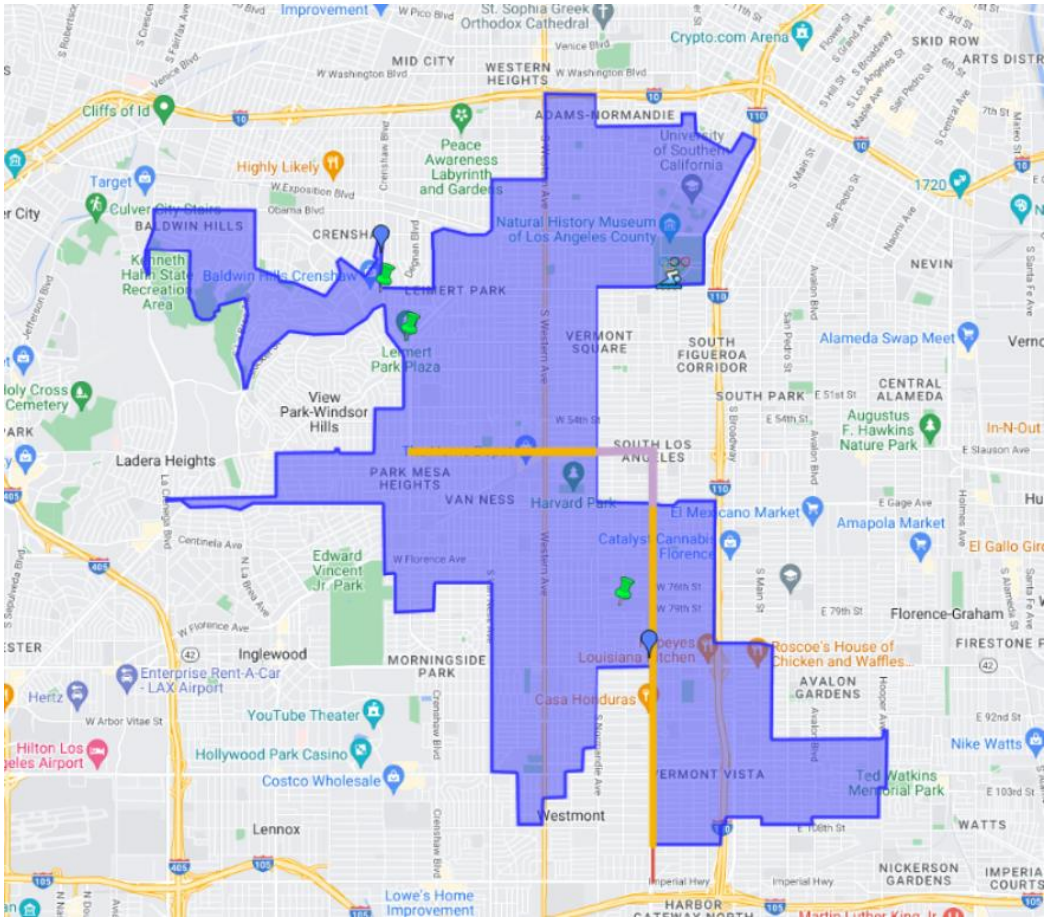
The current Fiber Optic Conduit Installation Program is capable of building approximately 5 miles of fiber conduit per year, which will be just enough to complete the Bureau's Community Connectivity Projects in the Crenshaw Corridor and Canoga Park in time to meet ARPA deadlines (ARPA funds are being used for materials and network equipment in these communities). Adding crews and taking on large externally-funded projects in FY 24-25 would allow the Bureau to grow

its fiber/conduit operations to a scale capable of generating sustainable revenue sufficient to cover operations into the future and to continue adding to the “Penultimate Mile” network into the future.

Dual-Purpose Conduit Replacement

As an additional way to build “Penultimate Mile” infrastructure in the absence of grant funds, BSL proposes a dual-purpose approach that would coordinate the construction of new fiber optic conduit with the replacement of aging electrical conduit which currently puts our street light network at risk. For all brand-new street lighting projects, the Bureau currently requires the addition of fiber-optic conduit. However, due to the financial constraints noted earlier in this report, the Bureau does not have an electrical conduit replacement program for existing networks. This approach would share costs between the two goals (electrical conduit replacement and new fiber optic conduit installation), embodying the “dig once” strategy.

As a demonstration of this approach, BSL has developed a proposed project that would span a total of 6.3 miles on Slauson Ave between Crenshaw Blvd and Vermont Ave, and on Vermont Ave between Slauson Ave and the Imperial highway. This project area is depicted in the image below. A total of 5.3 project miles (84% of the entire project) would be located in CD8. The total approximate cost is $2.9.M, two thirds of which BSL would be able to cover with existing sources of funds. The remaining one third could potentially be covered by Council discretionary funding or other sources to be identified.



The proposed conduit replacement / new fiber construction route is identified in orange and purple.

As has been clearly directed by the Mayor and City Council, the Bureau of Street Lighting's top priority is ensuring our lights are on. To this end we have left no stone unturned as we improve service delivery and retool for a more efficient operation. We are, however, at the point where resource constraints overshadow the ingenuity and innovation the Bureau has achieved. As we navigate the new fiscal year, we are confronted with our main revenues frozen in time, and recent resource gains lost due to belt tightening measures across the entire City, which will degrade our ability to keep up with the theft and vandalism. We estimate that the reduction in resources will result in approximately 1,000 fewer CWPT incidents being closed in FY 24/25. Nevertheless, we will work to the best of our ability to keep the lights on and evolve how the Bureau delivers its services.

Respectfully,

Miguel Sangalang, Executive Director
Bureau of Street Lighting