City of West Lafayette Public Safety Campus Feasibility Report

March 22, 2023

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

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Executive Summary

With the significant growth in population that the City of West Lafayette has experienced over the last 10 years, City administration put in motion the process of selecting a firm to assess the feasibility of combining the fire department's Station #2 and fire administration into a centrally located, single campus along West Navajo Street, adjacent to the current police station facility. Central to this study is the recognition that with significant population growth, commensurate improvements to the City's existing public safety services are necessary. The current Fire Station #2, located about 2/10ths of a mile east of the existing police station, is well past its useful life, both in terms of basic functionality as well as firefighter health and safety, and it needs to be replaced. The current police station, while decades newer than Fire Station #2, has also outgrown its original facility, compromising the effectiveness of services performed from this location. Shive-Hattery was tasked with providing the City of West Lafayette a report on the feasibility of creating a new public safety campus that incorporates the existing police station facility, locates a new Fire Station #2 and provides shared training and fitness opportunities to be utilized by both departments.

The 2023 City of West Lafayette Public Safety Campus Feasibility Report is a long-term assessment tool to support the growth needs of the fire and police departments for the next 30 years. The city's goals and vision for improvements in public safety — to expand the existing structures on city-owned property — aligns with civic needs for anticipated community growth targets with three fundamental considerations:

- Addressing functional solutions to ensure flexibility and adaptability,
- Establishing priorities for the fiscally responsible management of budgets, and
- Defining sustainable strategies to support community betterment.

The feasibility study concepts outlined in this report represent evaluations to renovate, re-purpose or modernize, and add new construction. The implementation of the plan will:

- Provide multi-functional spaces to promote community engagement with increased and diverse activity offerings,
- Support required municipal departmental growth, and
- Create high-functioning facilities while planning for future growth.

The integrated study objectives of this report are tied to the understanding of the City of West Lafayette's growth to determine future space needs for each department. This feasibility study identifies building and site opportunities that will enhance West Lafayette's fire and police services, public engagement and values.

Our findings, reflected in greater detail in the report that follows, demonstrate that the creation of a new shared public safety campus is feasible. Both the site and the existing police station facility, with modifications and additions, can accommodate the needs identified within this report of both the fire department and police department over the next 30 years. The location for the new Fire Station #2, at the east end of the campus, allows for significant improvements in the functional usefulness of Station #2, provides ample opportunity for on-site training, allows for the central relocation of fire department administration, and provides a new, full-functioning, 24 hour/7 days a week modern fire station that places the health and safety of firefighters front and center. With a strategic reimagining of the existing police facility, we demonstrate that reusing much of the existing building is both workable and the smart, sustainable solution to the department's ever growing needs. And with the creation of a centralized training and fitness center on-site, duplication of essential services of both the fire and police departments is avoided, making the most efficient use of City resources.

The information collected through this process and collected in this document, sets the foundation for the City of West Lafayette to deliver a state-of-the-art Combined Public Safety Campus to serve the needs of the community, and the fire and police departments for decades to come.

Project Statement/Historical Analysis

Shive-Hattery was tasked with providing the City of West Lafayette with a feasibility study for a new Public Safety Campus. This Public Safety campus is intended to house both Fire Station #2 and the Police Station, as well as shared meeting/training spaces and fitness facilities. **Meeting with fire, police and City representatives, Shive-Hattery developed a comprehensive building and site program** that defines both the current and future needs of the fire and police departments, and how these needs could be accommodated as part of an adjacent building added to the existing police station along West Navajo Street.

1). The current Fire Station #2, located at 531 West Navajo Street, was constructed in 1963 and covers a response area north of Hillcrest Road and south of Cumberland Avenue. It houses both Engine 1502 and Ladder 1504, and receives the highest volume of service calls due to its central location in the City of West Lafayette. Due to lack of available space, no EMS service/vehicles can be housed at the current station. In the decades since this station was constructed, best practice design standards for fire stations have changed dramatically; not only have the apparatus themselves grown larger and more complicated, so, too has the force itself and how a focus on firefighter health and safety has now taken center stage.

Being located on the busy corner of West Navajo Street and North Salisbury Street, the station (location wise) is well suited for quick responses to the central city area. However, this station was constructed as a back-in station, meaning that returning apparatus must stop traffic along Navajo Street in order to back-up into the apparatus bays **(putting both the firefighters themselves, as well as commuters, in a potentially dangerous situation).** Current best practices recommend drive-thru apparatus bays, eliminating the need to stop traffic to back-up into the station. In addition, the limited number of crew vehicle spaces (five to six) requires visitors to have to utilize and park in the existing parking lot at the Fresh Thyme grocery store directly across the street to the north of Navajo Street. Unfortunately, the current site does not provide the land area necessary to accommodate pull-thru drive bays or room for additional parking spaces.

When the station was constructed in 1963, the primary design goal was ensuring the fastest response time for firefighters from their beds to the trucks in the apparatus bay. **The bedroom (open, dorm-style bedroom, designed for an all-male force) opens directly into the apparatus bay, exposing the inhabitants to harmful toxins and carcinogens from the truck exhaust, wafting into the station living and sleeping areas.** The restroom and shower facilities, too, were designed with an all-male force in mind, leaving the department to hobble together separate (and inadequate) facilities for female firefighters, taking additional space away from the general station needs (which are already too cramped).

The station also does not meet current ADA accessibility standards and cannot accommodate visitors, or administrative staff. In addition, there is little space for basic needs of the firefighters: space to create and share meals together, space for training and writing reports, and space for providing separate, enclosed turn-out gear storage rooms and adequate decontamination after service calls. Granted, the crews housed at this station have done the best they can with what they have to work with and should be commended for fitting in as many modern necessities as they can. However, in the 60 years that this station has been in service, it has become clear that a new and improved modern station is necessary to best serve the West Lafayette community.

2). The current Police Station along Navajo Street was completed in 2003, with 29,015 square feet of existing

space, supports a design operational capacity for 52 staff. Currently, there are 57 administrative and sworn police staff working in the facility, which after 20 years of operating at this location is undersized. Given the police facility is relatively new infrastructure (20-years) to support the prior financial investment at this location, expansion and remodeling emerged throughout this study to be the preferred option. While the current location needs to be renovated and modernized, the expense to fully replace the facility compounds the cost of any proposed project.

The City of West Lafayette's geographical footprint is 13.2 square miles. The City of West Lafayette has a population of over 47,000, a Purdue student population of 50,000 and a university staff of over 10,000. Thus, at any given time during the year West Lafayette can see over 100,000 people in the community.

The police department has noted, "Although the University is within the jurisdiction of the Purdue University Police Department, the University has a major impact on West Lafayette and its Police Department. The City's population changes throughout the year, especially after fall and spring semesters and during other breaks in the school calendar. Although the population changes during summer break, summer school enrollment draws 22,000 graduate/professional and undergrad students. West Lafayette also has thousands of visitors attending Purdue-related events throughout the year that require traffic assistance and additional security."

Demographic and staff projection evaluations determined 45,600 square feet need for the police department to accommodate growth over the next 30 years. Operationally, projection indicate that over 70 sworn personnel will be needed to serve the community. The patrol and investigative divisions will have a greater growth need that other departments. These factors, coupled with departmental training/fitness and evidence retention considerations, created the conditions on how the existing police infrastructure should be evaluated to adapt and achieve best practices.

From a sustainability perspective, the environmental replacement of a facility that is 20 years old, would not be the most viable option. Instead, 'adaptability' is a key consideration. Reconfiguring programmatic needs through the renovation of existing space is viable in this case. By placing additions to the east and west ends of the facility, the modernization of interior spaces, emerged as a more effective means to reusing the existing infrastructure than full replacement.

3.) Once an understanding of the current limitations of the existing site of Station #2 was developed, we performed an analysis of the existing fire coverage of the three existing fire stations utilizing GIS software, historic run records from the department, and current population data to demonstrate graphically response times and station coverages from each of the stations to establish a baseline for the department. We also compared these results with the coverage and response time data from moving the station one block west to the proposed location east of the current police station. **This effort established that nearly identical coverage as the current Station #2 would be achieved at the new proposed location and confirmed what the City already suspected — that this was the ideal location for any future station.** The land next to the Police station was already owned by the City, there was adequate space to accommodate a modern, healthy station with pull-thru bays and sufficient parking for crews, crew changes, and staff, administration and visitor parking. The land available at this potential location also provides sufficient space to allow for on-site training activities for the department, a necessity the current station simply cannot provide.

Project Statement/Historical Analysis

Our analysis shows that the current vacant land directly east of the existing police station and west of the First Merchants Bank along West Navajo Street is capable of being programmed and built to house the following:

New Fire Station #2 with pull-thru apparatus bays
Shared training and fitness facility for fire and police staff
Renovated and modernized Police Station
Elevated parking structure dedicated to police staff

Concurrent with the location analysis was the start of a scoping process with all parties involved — fire, police and City administration — followed by individual tours of the existing police station and current fire stations in the City of West Lafayette. Interviews were conducted with each of the individual crews stationed at Fire Station #2 for fireperson assessments of efficiencies and deficiencies with the existing stations, as well as input into the final new station program. From these series of meetings, a comprehensive space program was developed that was used as the basis for the proposed space plans presented here.

Servicing one of Indiana's significant communities, the West Lafayette Fire and Police Departments needed accessible spaces for collaboration, safety and security, all while keeping departments organized. Specifically for police, departmental needs have outgrown their space within the existing building, becoming fragmented and challenging operationally. The solution is a highly collaborative and technology-driven approach to the building to re-integrate staff spaces and create a new emphasis on shared common and training space to foster collaboration and community betterment.

Enhancing site flow and circulation to and from the facility is a priority. Emphasis was placed on improving flow to create zones to properly secure staff from publicly accessible areas. Accessibility requirements occur on a 24/7/365 basis, as the evidence-based practice considerations developed, emphasis was centered around enhancing safety, while allowing the training spaces to be fully accessible to the public. Even if events occur outside of normal business hours.

With the police departmental reorganization and modernization of spaces, administrative, investigations and patrol services needed a way to modernize the workflow for employees while still feeling accessible and inviting to the community. Support spaces promote industry-leading workplace amenities and high-tech staff training simulator and physical agility training spaces are planned, so law enforcement staff receive beneficial training support.

There are several significant challenges that were identified with the existing fire and police facilities. Thus, the focus to increase value was identified and addressed in this study. The areas are:

- **Workplace Wellness.** The absolute value of providing a safe work environment for fire and police that reduces exposure to harmful (often cancer-causing) agents.
- **Operational Efficiencies.** The ability to reduce the cost of operations by installing greener and more efficient systems throughout, improving the existing facility by integrating or upgrading existing systems with the addition and new build.

Project Statement/Historical Analysis

- **Community Space.** The joint community and personal training spaces have become outdated, new space considerations designed to accommodate a larger group of people and training needs.
- **Access to Advanced Technology.** Better trained first responders, advanced fire and police technology that is crucial to increasing the expertise of public safety officials.

One of the primary challenges associated with the new fire station was incorporating current best practice design features that specifically address firefighter health and safety. By utilizing the philosophy of "Design By Zones," we segregated spaces within the station to prevent cross-contamination of contaminants from "dirty" areas of the station, i.e. the apparatus bay, turn-out gear storage and decontamination areas, from "clean" areas of the station, i.e. the living/working areas of the station. In addition, developing a building and site plan concept that eliminated the current need to back-into the current Station #2 apparatus bay by providing pull-through bays in the proposed facility was a particular challenge that Shive-Hattery was able to overcome. Overall, the new fire station accommodates the following:

- **Fire administration and shift staff.**
- **Living and working facilities for the current Station #2 crews, as well as provisions for an expansion of these crews from 9 to 11 per shift.**
- **An apparatus bay with 3-1/2 pull-through bays sized to house an aerial ladder truck, engine, Battalion vehicle and future ambulance.**
- **Support spaces, including decontamination areas and turn-out gear.**
- **Hose drying tower that incorporates fire training opportunities.**

4). The last part of this three-piece program was the inclusion of a shared meeting and training facility that could be utilized by both fire and police administration and staff, as well as potentially the community at large, eliminating the need for duplicate facilities if fire and police services were not able to be combined at one site. In addition, a large, shared fitness facility, with exercise areas, locker and shower/restroom facilities was also included in the shared space program. This shared area between the fire and police stations also afforded the opportunity to provide a larger mechanical and plumbing plant that could more economically service the overall facility, again more efficiently than if separate provisions were made for separate fire and police facilities.

As evidenced on day one of our involvement with this Feasibility Study, Fire Station #2, **the current police station and fire administration facilities have long outgrown their useful lives, and as the City of West Lafayette continues to grow, so, too the needs for its public safety facilities grow as well.** Our task at Shive-Hattery was to identify the areas and ways in which the existing facilities are inadequate, and in doing so, develop a new program that accommodates the changing practice of fire safety and law enforcement.

Primary among these discussions was full participation by City administration, fire and police departments, including in-person and remote meetings, tours of existing facilities and tours of regional facilities. We were guided by the following needs identified at the beginning of the project:

- Gender-neutral facility to accommodate the growing diversity within the fire and police service.
- Adequate storage for medical, firefighting, law enforcement and training material.
- Consideration of green initiatives, including EV charging, solar power generation and energy-efficient building materials.

Project Statement/Historical Analysis

- Joint access for fire and police training, physical fitness and meeting space that can act as a bridge between these two identities.
- Facilities that are designed to mitigate exposures to potential carcinogens, as well as overall first responder health and safety.
- Taking advantage of applied technologies throughout the facility to improved efficiency and performance.

This new program looks ahead to the next 30 years, providing the flexibility and resiliency required to both maintain a strong and healthy environment for first responders, as well as providing the space and resources necessary to ensure that the citizens of the City of West Lafayette are served to the highest standards.

MEP Summary

The project will result in an integrated public safety facility that will be significantly larger than the existing police station. This presents an opportunity to improve the building infrastructure while addressing possible changes to the layout and function of the existing facility:

- Construction of a new fire station attached to the existing police station will require new utility services to the combined facility. **Existing utility services and equipment are insufficient for the larger building.**
- Economies can be achieved by designing whole-building mechanical and electrical systems that will incorporate resilience and redundancy, rather than separate, smaller facilities that would each need such robust infrastructure.
- Proven and emerging technologies, as well as current best practices, **will be employed to increase safety and effectiveness of the critical role of the fire and police departments, while reducing maintenance and operations costs.**
- The age of the existing police department infrastructure will require selective replacement and expansion of existing HVAC, plumbing and power systems, and equipment to extend the life of the building.

This document is to be used by both the City, including the fire and police departments, as well as the community at large, to position themselves to make the necessary, informed decisions to enable the fire and police departments to move forward with data-driven and first-person guidance.

We hope this study provides the level of assurance to the City of West Lafayette that development of this proposed public safety facility is both necessary and overdue.

SPACE PROGRAM CONSIDERATIONS

Green Initiatives/Sustainable Suggestions

Space Program Considerations

Prelim Space List - Program — **SUMMARY SHEET** — **S**

West Lafayette, IN - PD/FD Renovation & Addition

	Component / Area Description	Number of Spaces	Avg. Space Size (NSF)	Total (NSF)	Comp. Factor	Total (CNSF)	Existing Building (NSF)	Remarks	
POLICE DEPARTMENT									
A	2 Police Chief and Administration	21	195	4,085	1.25	5,100	2,533	30-year program deficiency to existing is (SF)	-2,567
PD	3 Patrol Division	24	151	3,630	1.20	4,300	2,412	30-year program deficiency to existing is (SF)	-1,888
CI	2 Criminal Investigation	23	132	3,040	1.25	3,800	3,174	30-year program deficiency to existing is (SF)	-626
SS	2 Special Services _ Ancillary Staff	23	155	3,575	1.20	4,200	1,191	30-year program deficiency to existing is (SF)	-3,009
PR	3 Processing	13	178	2,320	1.20	2,800	1,766	30-year program deficiency to existing is (SF)	-1,034
E	4 Evidence/Property	10	370	3,700	1.10	4,100	1,729	30-year program deficiency to existing is (SF)	-2,371
V	4 Vehicle Maintenance	7	256	1,790	1.05	1,900	0	30-year program deficiency to existing is (SF)	-1,900
TS	1 Shared Training & Support	21	382	8,015	1.05	8,400	4,511	30-year program deficiency to existing is (SF)	-3,889
Sub-Totals:		**142**	**212**	**30,155**	**1.15**	**34,600**	17,316	30-year program deficiency to existing is (SF)	-17,284
		Spaces	Avg. Space Size	Net S.F.	Avg. N.F.	Comp. S.F.			
POLICE SUPPORT SPACES									
AN	1 Ancillary	17	279	4,745	1.10	5,200	1,108	30-year program deficiency to existing is (SF)	-4,092
BS	B(F) Building Support - Mechanical Electrical	9	292	2,630	1.10	2,900	1,022	30-year program deficiency to existing is (SF)	-1878
Sub-Totals:		**26**	**284**	**7,375**	**1.10**	**8,100**	2,130	30-year program deficiency to existing is (SF)	-5,970
		Spaces	Avg. Space Size	Net S.F.	Avg. N.F.	Comp. S.F.			

X Gen'l Building Gross Factor (envelop, corridors, stairs, elev.): 1.07 =

45,600	19,446	*29,015*
Total G.S.F.	Existing N.S.F.	Existing G.S.F.

STAFFING SUMMARY (POLICE)					
DEPARTMENT		Present	5-10 Yr's	20 Year	30 Year
Police Chief and Administration		7	7	10	10
Patrol Division		36	44	54	60
Criminal Investigation		9	10	11	12
Special Services _ Ancillary Staff		4	6	11	13
Evidence/Property		1	1	2	2
Communications / Dispatch					
TOTALS		57	68	88	97
		50	60	66	73
		Sworn	Sworn	Sworn	Sworn

Flexible for growth to 120 staff

470	500 to 550
G.S.F. / Employee @ 30-years	G.S.F. / Employee (Industry EBP)

Staffing projections are based on meetings with Chief Harris to discuss 30-year staffing needs. Square footage is based on research that Shive-Hattery has done of completed police facilities. It is a planning factor, for comparison purposes.

Prelim Space List - Program — **SUMMARY SHEET** — **S**

West Lafayette, IN - PD/FD Renovation & Addition

	Component / Area Description	Number of Spaces	Avg. Space Size (NSF)	Total (NSF)	Comp. Factor	Total (CNSF)	Existing Building (NSF)	Remarks
	Component / Area Description	Number of Spaces	Avg. Space Size (NSF)	Total (NSF)	Comp. Factor	Total (CNSF)	Existing Building (NSF)	Remarks
FIRE DEPARTMENT								
FA	FA - Apparatus and Bay Components	17	412	6,805	1.10	7,400		30-year program (SF)
FR	FR - Residence Components	40	104	4,166	1.25	5,200		30-year program (SF)
FD	FD - Admin / Support Components	25	163	4,067	1.25	5,000		30-year program (SF)
FC	FC - Circulation Components	7	132	924	1.10	1,000		30-year program (SF)
Sub-Totals:		**89**	**180**	**15,962**	**1.17**	**18,600**		30-year program (SF)
		Spaces	Avg. Space Size	Net S.F.	Avg. N.F.	Comp. S.F.		

X Gen'l Building Gross Factor (envelop, mech & elect.): 1.08 =

20,000		
Total G.S.F.	Existing N.S.F.	Existing G.S.F.

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

CHIEF AND ADMINISTRATION **A**

STAFF P: QTY	STAFF F: QTY (10 YEAR)	STAFF F: QTY (20 YEAR)	STAFF F: QTY (30 YEAR)	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
				A	**Police Chief and Administration**						
1	1	1	1	A.101	Chief of Police	1	300	**300**	240	O	Private Office (Existing Room 106)
1	1	1	1	A.102	Deputy Chief of Operations	1	275	**275**	213	O	Private Office (Existing Room 110)
		1	1	A.103	Deputy Chief - Command	1	275	**275**	189	O	Private Office (Future) (Existing Room 108)
1	1	1	1	*A.104*	*Capt Office - Partol / Data Mgmt.*	1	250	**250**	202	O	(Existing Room 224) _ previously program reference PD.101
1	1	1	1	*A.105*	*Captain of Investigations*	1	250	**250**	210	O	Private Office (Existing Room 213) _ previously program reference CI.101
1	1	1	1	*A.106*	*Captain of Special Services*	1	250	**250**		O	
1	1	1	1	A.107	Admin - Office Manager	1	150	**150**	152	O	Private Office (Existing Room 103)
1	1	1	1	A.108	Departmental Social Workers	1	150	**150**		W	
		1	1	A.109	Fleet Services Supervisor	1	175	**175**	188	O	(Existing Room 227)
				A.110	Public Relations			**0**	118		(Existing Room 228)
		1	1	A.111	Open Office Workstations	3	100	**300**	535	W	Open Office (Existing Room 104 1-position current; 1 -position future; 1- Chaplain (Existing Room 111))
				A.112							
				A.113	Workroom / Galley	1	200	**200**	85		Copiers / Office Supplies (Existing Room 107)
				A.114	Storage (Files)	1	200	**200**	79		(Existing Room 109)
				A.115	Files - secure (Personnel Records)	1	300	**300**			Presonal records and financial (Secure Room)
				A.116	Conference Room	1	400	**400**	322		Sized for 16 people (Existing Room 105)
				A.117a	Storage - conf. room (a/v)	1	200	**200**			
				A.117b	Mail / Coffee	1	150	**150**			
				A.117c	Administration - Support	1	100	**100**			
				A.118	Administration - Toilet	2	80	**160**			
				Sub-Totals: A		**21** Spaces	**195** Avg. NSF per Space	**4,085** Total N.S.F.	2,533		

Present	5-10 Yr's	20 Year	30 Year
7	7	10	10

DEPT STAFFING SUMMARY

X Building Gross factor of: 1.25 = **5,100** Total G.S.F.

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

Patrol Division **PD**

STAFF P: QTY	STAFF F: QTY (10 YEAR)	STAFF F: QTY (20 YEAR)	STAFF F: QTY (30 YEAR)	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
				PD	**Patrol Division**						
3	3	4	4	*PD.101*	*Patrol Admin - LT. & SGT.*	*2*	400	**800**	524	O	Shared LT with SGT if present (Private Office) (Existing Room's 221, 222, & 223) *Projected & Shared: 16 Patrol Officer Workstations; Shared 6'x30" benching workstations; PC / Laptop capable at each workstation; phones; storage area; easy access to forms and documents. Mobile Storage Pedestal (1 for each officer)*
32	40	48	54	*PD.102*	*Patrol - Uniform Division*	*12*	70	**840**		W	
1	1	2	2	*PD.103*	Traffic / Crash Investigations (Motors)	1	200	**200**	77		(Existing Room 226)
				PD.104	Roll Call (Squad) Room	1	600	**600**	1,050		Seats 20; Movable tables and chairs (Existing Room 145) (50/50 squad trining & report writing)
				PD.104a	Report / Squad room				218		(Existing Room 135)
				PD.104b	Files				101		(Existing Room 136)
				PD.104c	Patrol Entry Vestibule				74		(Existing Room 147)
				PD.104d	Copier / Work Area				93		(Existing Room 134)
				PD.104e	Conference / Daily Review				124		(Existing Room 225)
				PD.105	Patrol Form Storage / Printer	1	150	**150**	73		Space for officers' forms, collateral assignments, work equipment / office materials (Existing Room 233)
				PD.106	Juvenile Waiting	1	120	**120**			
				PD.107	Small Equipment Storage / Patrol Issue / Misc. Patrol Operations storage	1	300	**300**			Adjacent to Roll Call; civil disturbance gear, weapon lockers, less lethals, shared field related equipment, etc;
				PD.108	Go Bag Storage / Patrol Operations Storage	1	300	**300**			Lockers adjacent to patrol vehicle parking exit; Includes 50 (approx 2'x4') lockers in an alcove
				PD.109	Staff Toilet Rooms	2	80	160	78		(Existing Rooms 126 & 127)
				PD.110	Evidence Drop-off	0	150	**0**			Worksurface for officers to write reports. Pass-through lockers for officers to lock up evidence for technician to process. *(Moved to Evidence Room E.101).*
				PD.111	Short-Term Sleeping Rooms	2	80	**160**			(Moved from Ancillary Room AN.110.)
				Sub-Totals: PD		**24** s	**151** Avg. NSF per Space	**3,630** Total N.S.F.	2,412		

X Building Gross factor of: 1.20 = **4,300** Total G.S.F.

Present	5-10 Yr's	20 Year	30 Year
36	44	54	60

DEPT STAFFING SUMMARY

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

CRIMINAL INVESTIGATION **CI**

STAFF P: QTY	STAFF F: QTY (10 YEAR)	STAFF F: QTY (20 YEAR)	STAFF F: QTY (30 YEAR)	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
				CI	**Criminal Investigation**						
1	1	1	1	CI.101	Lieutenant - Criminal Investigations	1	200	**200**	148	O	Private Office (Existing Room 214)
1	1	1	1	CI.102	SGT - Criminal Investigations	1	150	**150**	143	O	Private Office (Existing Room 217)
5	6	7	8	CI.103	Criminal Investigation (Detectives)	8	95	**760**	580	W	*Open office - Workstation (Existing Room 205)*
				CI.104	Recept/Admin (Secretary)	1	150	**150**	252	W	Open Office - Work Area (Existing Room 218)
1	1	1	1	CI.105	DFT Officer	1	95	**95**	157	W	(Existing Room 212)
1	1	1	1	CI.106	HTCU Officer	1	95	**95**	144	W	(Existing Room 213)
				CI.107	Interview Room	1	100	**100**	84		(Existing Room 229)
				CI.108	Interview Room 2	1	100	**100**	74		(Existing Room 230)
				CI.109	*Interview Room 3*	*1*	*100*	***100***	102		(Existing Room 236)
				CI.110	Interview Room - Toilet	1	60	**60**	38		(Existing Room 231)
				CI.111	Soft Interview Room	1	80	**80**	207		
				CI.112	Family Services Room	1	150	**150**	84		Semi-secure (Existing Room 238)
				CI.113	Major Case Room	1	700	**700**	1,060		Seating for 20-25 people. Secure location, no public access (Existing Room 244)
				CI.114	Case File Storage	1	100	**100**			
				CI.115	Storage Room	1	100	**100**			
				CI.116	Polygraph	1	100	**100**	101		(Existing Room 239)
				Sub-Totals: CI		**23**	**132**	**3,040**	3,174		
						Spaces	Avg. NSF per Space	**Total N.S.F.**			
				X Building Gross factor of:		**1.25**	**=**	**3,800**			
								Total G.S.F.			

Present	5-10 Yr's	20 Year	30 Year
9	10	11	12

DEPT STAFFING SUMMARY

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

SPECIAL SERVICES - ANCILLARY STAFF **SS**

STAFF P: QTY	STAFF F: QTY (10 YEAR)	STAFF F: QTY (20 YEAR)	STAFF F: QTY (30 YEAR)	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
				SS	**Special Services _ Ancillary Staff**						
				SS.101	Lt Special Services & Staff	1	250	**250**	102	O	(Existing Room 141 - Data Systems Manager)
				SS.102	SGT. Special Services & Staff	1	150	**150**		O	
1	1	2	2	SS.103	Maintenance Technician	1	200	**200**	84		(Existing Room 133 - Maint. Tech) (Shared workarea (2))
1	1	1	1	SS.104	Neighborhood Resources Supervisor	1	150	**150**	95	O	(Existing Room 113)
				SS.105	Neighborhood Resources	3	75	**225**	113	W	(Existing Room 112)
		1	1	SS.106	Information Technology Tech	1	200	**200**		O	
	1	2	3	SS.107	NRT (Open Offic)	3	75	**225**		W	
	1	2	3	SS.108	Parking Tech	3	75	**225**		W	
2	2	2	2	SS.109	Records / Records Clerk	1	450	**450**	635	W	(Existing Room 138)
		1	1	SS.110	Office - Records	1	150	**150**		O	Future Office
				SS.111	SRO's (3), Social Workers (2), Wellness Officer (1)	2	75	**150**		W	*SHARED*
				SS.112	Files - Records	1	500	**500**	162		(Existing Room 137)
				SS.113	Workroom / Galley	1	200	**200**			Copiers / Office Supplies
				SS.114	Restrooms	2	100	**200**			
				SS.115	Storage	1	300	**300**			
				Sub-Totals: SS		**23**	**155**	**3,575**	1,191		
						Spaces	Avg. NSF per Space	**Total N.S.F.**			
				X Building Gross factor of:		**1.20**	**=**	**4,200**			
								Total G.S.F.			

Re-purposing 1,200 sf of existing space, associated with sustainable strategies

Present	5-10 Yr's	20 Year	30 Year
4	6	11	13

DEPT STAFFING SUMMARY

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

Processing **PR**

STAFF P:QTY	STAFF F:QTY (5 y)	STAFF F:QTY (15 y)	STAFF F:QTY (30y)	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
				PR	**Processing**						
				PR.101	VSP	1	900	**900**	1,282		Min. 16' x 24' for drive thru (768sf) 2-stall 'bay' arrangement (drive-thru), plus 132SF Misc. Storage (Existing Room 130). One (1) of Four (4) Vehicle Bays in the Project within the VSP
				PR.102	SPV (Exterior)	1	80	**80**			
				PR.103	Assessment / Processing Area	1	300	**300**	142		Adjacent to Holding, Hardened Interview Room, and Sallyport for booking determination (Existing Room 123)
				PR.103a	Processing (Storage)	1	60	**60**			
				PR.104	Detainee Toilet	1	60	**60**	60		(Existing Room 122)
					Holding (Interview / Processing)				70		(Existing Room 124)
				PR.105	Vestibule (Interior)	1	80	**80**	62		(Existing Room 148)
				PR.106	Interrogation (Hardened Interview)	2	80	**160**	86		Hardened / Sterile Area; Sound Proof. (Existing Room 125)
					Interview - Viewing Room				64		(Existing Room 128)
				PR.107	Holding Cell - Circulation	1	320	**320**			
				PR.108	Cells	3	80	**240**			Indv. Holding Min. 80SF (Short term upto 4 ea.). Half-height privacy wall at toilet
				PR.109	Decontamination (workstation)	1	120	**120**			

Sub-Totals: PR **13** Spaces | **178** Avg. NSF per Space | **2,320** Total N.S.F. | 1,766

X Building Gross factor of: 1.20 = **2,800** Total G.S.F.

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

EVIDENCE **E**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	E	**Evidence/Property**						
	E.101	Evidence Drop-off	1	120	**120**			Located E101 from Partol Division (prefer Evidence Suite adjacency, by Patrol)
	E.101a	Crime Laboratory	1	300	**300**	475		(Existing Room 023)
	E.102	Evidence Processing	1	200	**200**	76		(Existing Room 014)
	E.103	Evidence Storage	1	1500	**1,500**	855		Secure Room (Existing Room 017) (Existing evidence pieces 16-18K).
	E103a	Evidence Weapons Storage	1	200	**200**	80		Secure Room (Existing Room 019)
	E103b	Evidence Cash Storage	1	100	**100**			
	E103c	Evidence Drug Storage	1	300	**300**	73		Secure Room (Existing Room 020)
	E103d	Evidence Technician Workstation	2	100	**200**	93		(Existing Room 021 - Digital Processing)
	E.104	Evidence Processing Vestibule	1	80	**80**			
	E.105	Drying Room				77		(Existing Room 023)
	E.106	Evidence Vehicle Processing	1	400	**400**			One (1) of Four (4) Vehicle Bays in the Project
	E.107	Large Evidence Storage	1	300	**300**	350		(Existing Room 131 - Large Evidence Storage)

Sub-Totals: E **10** Spaces | **370** Avg. NSF per Space | **3,700** Total N.S.F. | 1,729

X Building Gross factor of: 1.10 = **4,100** Total G.S.F.

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

Vehicle Maintenance & Support **VM**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	VM	**Vehicle Maintenance**						
	VM.101	Vehicle Maintenance Storage	1	150	**150**			Worksurface for light vehicle maintenance; Storage for Light Vehicle Maintenance Supplies: air compressor, floor jack, spare tires
	VM.102	Bike Storage - misc.	1	100	**100**			
	VM.103	Small vehicle storage	1	400	**400**			
	VM.104	Secure Storage	1	100	**100**			
	VM.105	General Storage (traps, supplies)	1	300	**300**			Storage for traffic cones, barricades, maint.
	VM.106	Vehicle Decontamintation	1	60	**60**			One (1) of Four (4) Vehicle Bays in the Project. Hose (Hotsy) for cleaning squad vehicles.
	VM.107	Vehicle Maintenance Bay	1	380	**380**			One (1) of Four (4) Vehicle Bays in the Project. This bay with lift work space.
	VM.108	K-9 Unit	1	300	**300**			K-9 Unit Support Space for Dog & Equip (fenced Indoor & Outdoor area)
Sub-Totals: VM			**7**	**256**	**1,790**	0		
			Spaces	Avg. NSF per Space	**Total N.S.F.**			
		X Building Gross factor of:	**1.05**	**=**	**1,900**			
					Total G.S.F.			

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

SHARED TRAINING & SUPPORT **TS**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
	TS	**Shared Training & Support**						
	TS.101	*Gender Neutral - Locker Room*	*1*	*1500*	**1,500**			73 Sworn Lockers plus 8 future (2'w x 2'8"d + 3'-6" circ (each))
	TS.101a	Women's Locker Room				290		(Existing Room 011).
	TS.101b	Men's Locker Room				788		(Existing Room 007).
	TS.103	Locker Room Aminities - Gen. Circ.	1	100	**100**			Vest Drying
	TS.103a	Laundry & Storage - Staff	1	175	**175**			
	TS.103b	Locker Room - entrance vestibules	1	80	**80**	84		(Existing Rooms 004 & 006)
	TS.104	Locker Room Toilets & Showers	6	80	**480**	520		Indv. Separate rooms (Existing Rooms 008, 009, & 010)
	TS.105	Janitor's Closet	1	80	**80**	28		(Existing Room 005)
						128		(Existing Room 013)
	TS.106	*Fitness / Weight Room*	*1*	*2200*	**2,200**	943		(Existing Room 003)
	TS.107	Tactical Training - Fitness Room	1	750	**750**	1,730		(Existing Room 'Alternate') _mat room
	TS.108	Fitness Support (TACC Adviser)	1	350	**350**		**O**	
	TS.109	Simulation Training Room (VITRA)	1	800	**800**			
	TS.109a	Vitra Storage & Maintenance Repair	1	200	**200**			
	TS.109b	Vitra Training (Observation)	1	300	**300**			
	TS.109c	Vestibule (Gun Lockers - Exchange)	1	100	**100**			
	TS.110	Quartermaster - Issue and Storage	1	500	**500**			
	TS.111	TACC Advisor Office	1	175	**175**			
	TS.112	TACC Advisor Workroom	1	225	**225**			
Sub-Totals: TS			**21**	**382**	**8,015**	4,511		
			Spaces	Avg. NSF per Space	**Total N.S.F.**			
		X Building Gross factor of:	**1.05**	**=**	**8,400**			
					Total G.S.F.			

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

ANCILLARY **AN**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	AN	**Shared Ancillary**						
	AN.101	Entry Vestibule	1	150	**150**	134		(Existing Room 101)
	AN.102	Public Lobby (Law Enforcement)	1	600	**600**	237		(Existing Room 102)
	AN.103	Records Walk-up Vestibule				87		(Existing Room 144)
	AN.104	Consult Room	1	150	**150**			Adjacent to Lobby
	AN.105	Public Sink Area_ Gender Neutral	1	180	**180**			Wash Basin Area and Circulation
	AN.105a	Gender Neutral _ Toilets Stalls	4	45	**180**	78		(Existing Rooms 117 & 118)
	AN.105b	Gender Neutral _ Toilets ADA Stalls	1	55	**55**			
	AN.105c	Janitor's Closet	1	50	**50**			
	AN.105d	Mother's Room / Privacy Room	1	80	**80**			
	AN.106a	Community Room / Training	1	1,100	**1,100**			Configuration for 40 people; Operable Partion with AN.106b
	AN.106b	Community Room / Training	1	1,100	**1,100**			Configuration for 40 people; Operable Partion with AN.106a
	AN.106c	Lobby - Training / Community Room	1	200	**200**			
	AN.107	Training Room - Storage	1	250	**250**	218		(Existing Rooms 120 & 121)
	AN.108	Training Kitchenette	1	150	**150**			
	AN.109	Break Room and Kitchen	1	500	**500**	354		(Existing Room 119)

Sub-Totals: AN

17 Spaces | **279** Avg. NSF per Space | **4,745** Total N.S.F. | 1,108

X Building Gross factor of: 1.10 =

5,200 Total G.S.F.

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

Building Support - Mech. / Elect. **BS**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	BS	**Building Support - Mechanical Electrical**						
	BS.101	Mechanical Room	1	1270	**1,270**	488		(Existing Room 002)
	BS.101a	Mechanical Room Closet (Lower Level)				60		(Existing Room 022)
	BS.102	Electrical Room	1	325	**325**			
	BS.103	IT / Security Equip Room	1	285	**285**	145		(Existing Room 001 - Security)
	BS.103a	I.T. Storage				56		(Existing Rooms 151 & 245)
	BS.104	Custodial Closet	3	50	**150**	53		(Existing Rooms 114 & 201)
	BS.105	Genral Building Storage	1	400	**400**			
	BS.106	Facility Maintenance Office	1	150	**150**	165		(Existing Room 129 - Maint Storage)
	BS.107	Elevator Equipment Room	1	50	**50**	55		(Existing Room 028)

Sub-Totals: BS

9 Spaces | **292** Avg. NSF per Space | **2,630** Total N.S.F. | 1,022

X Building Gross factor of: 1.10 =

2,900 Total G.S.F.

Re-purposing 1,000 sf of existing space, associated with sustainable strategies

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

FD - Apparatus & Bay Components **FA**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	FA	**FA - Apparatus and Bay Components**						
		Section 1 - Apparatus Types						
	FA.101	Aerial Platform Rear Mount (Tandem Rear Axle)	1	405	**405**			
	FA.102	Commercial Series Pumper	1	260	**260**			
	FA.103	Utility Vehicles	1	140	**140**			
	FA.104	Ambulance	1	225	**225**			
		Section 2 - Bays						
	FA.201	Bays: 18'W (Grid to Grid)	4	1,224	**4,284**			
		Section 3 - Support Areas						
	FA.301	Decon Room w/ (2) Shower & (2) Toilet	1	510	**510**			
	FA.302	Turn-Out Gear Storage	1	480	**480**			for 33 FTEs and 6 floater (PT)
	FA.303	Admin Work Gear Storage	1	50	**50**			Can be located in Admin area (Files)
	FA.304	Secure Medical Supply Storage	1	120	**120**			Can be located in Admin area
	FA.305	Work Bench & Mop Basin	1	80	**80**			Can be open to Tool Room
	FA.306	Tool Room	1	100	**100**			Can be shared with Work Bench area
	FA.307a	SCBA Tank Fill	1	85	**85**			Can be shared with Truck Tire Compressor
	FA.307b	Truck Tire Compressor	1	16	**16**			Can be shared with SCBA Tank Fill
	FA.308	Hose Storage/Training Tower	1	455	**455**			Include training props
	FA.309	Traning Materials Storage	1	250	**250**			Locate adjacent to large Training Rm
	FA.310	Outdoor Storage	1	100	**100**			
	FA.311	Spare Hose Storage	1	150	**150**			Can be shared with Training Props Storage
	FA.312	Training Props Storage	1	125	**125**			Include inflatable education house

Sub-Totals: FD - Sections 2 & 3	**17**	**412**	**6,805**	0
	Spaces	Avg. NSF per Space	**Total N.S.F.**	

X Building Gross factor of: 1.10 = **7,400**

Total G.S.F.

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

FD - Residence Components **FD**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)		Remarks
	FR	**FR - Residence Components**						
		Section 4 - Residence						
	FR.401	Individual Rooms: (1) Bed, (1) Desk	11	117	**1,287**			
	FR.402	Individual Bathrooms:	4	64	**256**			
	FR.403	Wardrobe Rooms	11	72	**792**			
	FR.404	Floater Wardrobe Area	1	45	**45**			
	FR.405	Battalion Chief Office	1	116	**116**			
	FR.406	Station Captain Office	1	116	**116**			
	FR.407	Quiet Room	1	78	**78**			Can double as Lactation Rm
	FR.408	Dayroom: (10) Recliners	1	380	**380**			
		Section 4 - Kitchen						
	FR.409	(1) 6-Burner w/ 2-Ovens, (3) Refrigerators & Island	1	420	**420**			
	FR.410	Dining Room: (1) 12-Seat Table	1	375	**375**			
	FR.411	Pantry Closet/ Kitchen Supplies	4	27	**108**			(1) Dedicated Pantry/Shift + Shared Storage Space
		Section 4 - Other Amenities						
	FR.412	Residential Laundry	1	84	**84**			
	FR.413	Housekeeping Closet	1	32	**32**			Can be located within Laundry Room
	FR.414	ADA Restroom	1	77	**77**			

Sub-Totals: FR - Sections 4	**40**	**104**	**4,166**	0
	Spaces	Avg. NSF per Space	**Total N.S.F.**	

X Building Gross factor of: 1.25 = **5,200**

Total G.S.F.

Space Program Considerations

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

FD - Admin & Support Components **FD**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
	FD	**FD - Admin / Support Components**						
		Section 5 - Administration						
	FD.501	Watch Office	1	340	**340**		**O**	Overlooking App Bay
	FD.502	Chief's Office	1	305	**305**		**O**	
	FD.503	Administrative Assistant	1	180	**180**		**W**	
	FD.504	Operations Deputy Chief	1	200	**200**		**O**	
	FD.505	Training Chief	1	150	**150**		**O**	
	FD.506	Inspections (Open for 4)	1	370	**370**		**O**	
	FD.507	Inspections Deputy Chief	1	200	**200**		**O**	
	FD.508	Flex Space	1	42	**42**		**O**	
	FD.509	EMS Chief	1	150	**150**		**W**	
	FD.510	Future EMS/ Admin.	1	150	**150**		**O**	
	FD.511	Future Admin. Ass't.	1	72	**72**		**W**	
	FD.512	Future Admin.	1	175	**175**		**O**	
		Section 5 - Other Amenities						
	FD.513	Office copier/ printers/ storage	1	100	**100**			
	FD.514	CRR: Community Risk Reduction	1	48	**48**			
	FD.515	File Storage	1	200	**200**			
	FD.516	Quartermaster Supplies	1	435	**435**			
	FD.517	IT Closet	1	14	**14**			Can be located within another dedicated space
	FD.518	ADA Restroom/Shower	2	78	**156**			(1) Restroom/ (1) Combo Restroom-Shower
	FD.519	Coat Closet	1	7	**7**			
	FD.520	Admin Break Area	1	144	**144**			
	FD.521	Admin Locker / Personal Space	1	140	**140**			
	FD.522	Conference Room	1	334	**334**			
	FD.523	Housekeeping	1	80	**80**			
	FD.524	Lactation Room	1	75	**75**			Can double as small meeting rm.

Sub-Totals: FD - Section 5 **25** Spaces | **163** Avg. NSF per Space | **4,067** Total N.S.F. | 0

X Building Gross factor of: 1.25 = **5,000** Total G.S.F.

Prelim Space List - Program

West Lafayette, IN - PD/FD Renovation & Addition

FD - Circulation Components **FC**

	Program No.	Space Description	Number of Spaces	Areas of Each (NSF)	Total (NSF)	Existing Building (NSF)	O | W	Remarks
	FC	**FC - Circulation Components**						
		Section 7 - Circulation						
	FC.601	Building Vestibule	2	39	**78**			
	FC.602	Reception Area	1	300	**300**			
	FC.603	Airlock	2	39	**78**			
	FC.604	Stairway	2	234	**468**			

Sub-Totals: FS - Section 7 **7** Spaces | **132** Avg. NSF per Space | **924** Total N.S.F. | 0

X Building Gross factor of: 1.10 = **1,000** Total G.S.F.

LOCATION ANALYSIS

Location Analysis

Location Analysis:

The intent of the station location analysis was to provide the City and the fire department with a data-driven assessment of the current stations' coverages and responses times, and how this might potentially change with the relocation of Station 2. This process involves incorporating historical run records of the department and census population data into GIS software to illustrate existing coverages and travel times for each of the stations, which allows us to provide a baseline of the department's operations.

Fire service response is a complex system involving variables and constants. All emergency responses follow a timeline beginning with the discovery of an event and ending with closure or mitigation of the event. Technology like GPS in fire vehicles and GIS software, when used with incident reports, provide the tools and data necessary to fully evaluate incident response.

NFPA (National Fire Prevention Association) 1710 standards recommend the following: 60 seconds to turn-out, 4 minutes for the first engine company to arrive and 8 minutes for the full first-alarm assignment for at least 90 percent of all fire calls. For this assessment, we concentrated on the 4-minute response time distance from each of the stations.

The following exhibits show:

- Existing Station Locations
- Four-minute drive times from each of the stations
- Average annual call densities
- Current population densities
- Comparison of Current Station 2 location with proposed Station 2 location

The key takeaways from this assessment are as follows:

1. Existing coverage of the city population within a 4-minute drive time from each of the stations is approximately 68%.

2. Existing coverage of historic calls within a 4-minute drive time from each of the stations is approximately 89%.

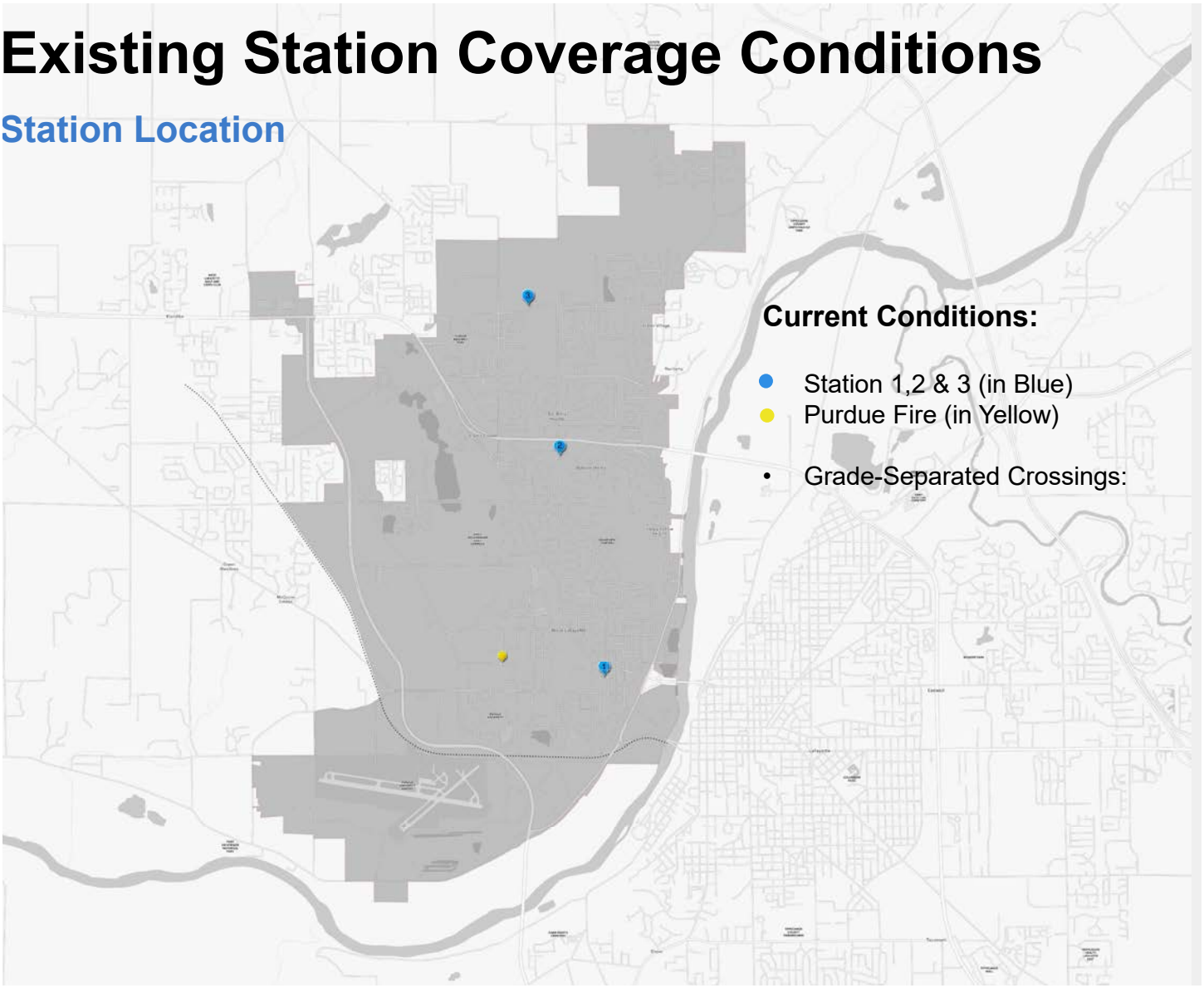
3. The current/proposed location of Station 2 covers the highest population and call responses of each of the three existing stations in the department (over 50% of each).

4. **Nearly identical coverage from the current Station 2 location to the proposed Station 2 location.** The population covered within the 4-minute drive time from each of these locations is nearly identical. The number of calls (from the 3-year historical call data) covered within the 4-minute drive time from each of these locations is also nearly identical.

Location Analysis

Existing Station Coverage Conditions

Station Location



Current Conditions:

- Station 1,2 & 3 (in Blue)
- Purdue Fire (in Yellow)

- Grade-Separated Crossings:

Analysis Standards

What do we mean by "coverage"?

- *NFPA 1710
  - 4-minute travel time from station

Data Uses

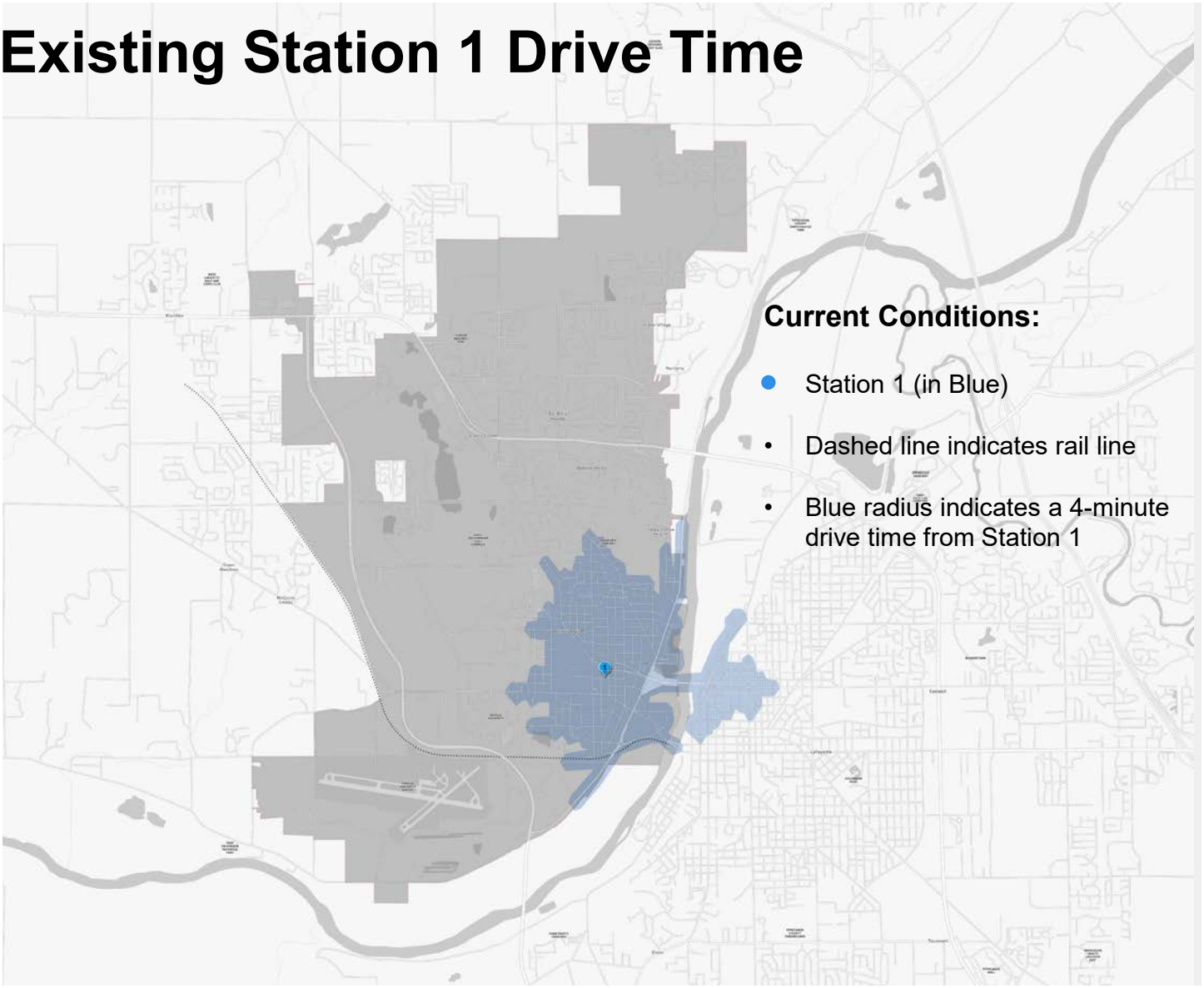
- Dispatch Data (2019, 2020, 2021)
- 2020 Census Data
- Grade-Separated RR Crossings
- ESRI Traffic Data

Assumptions

- At grade railroad crossings are inaccessible

Location Analysis

Existing Station 1 Drive Time

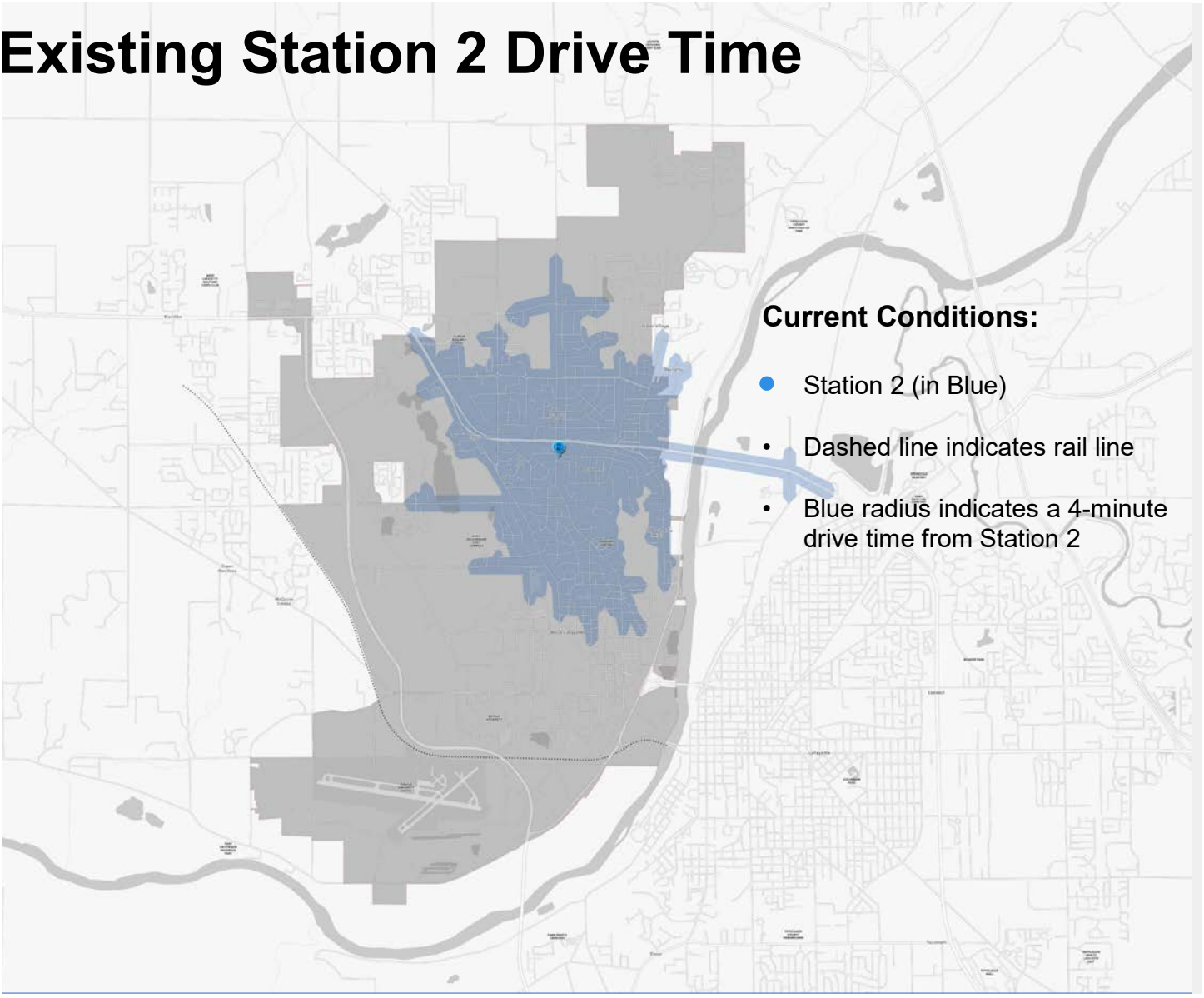


Current Conditions:

- Station 1 (in Blue)
- Dashed line indicates rail line
- Blue radius indicates a 4-minute drive time from Station 1

Location Analysis

Existing Station 2 Drive Time

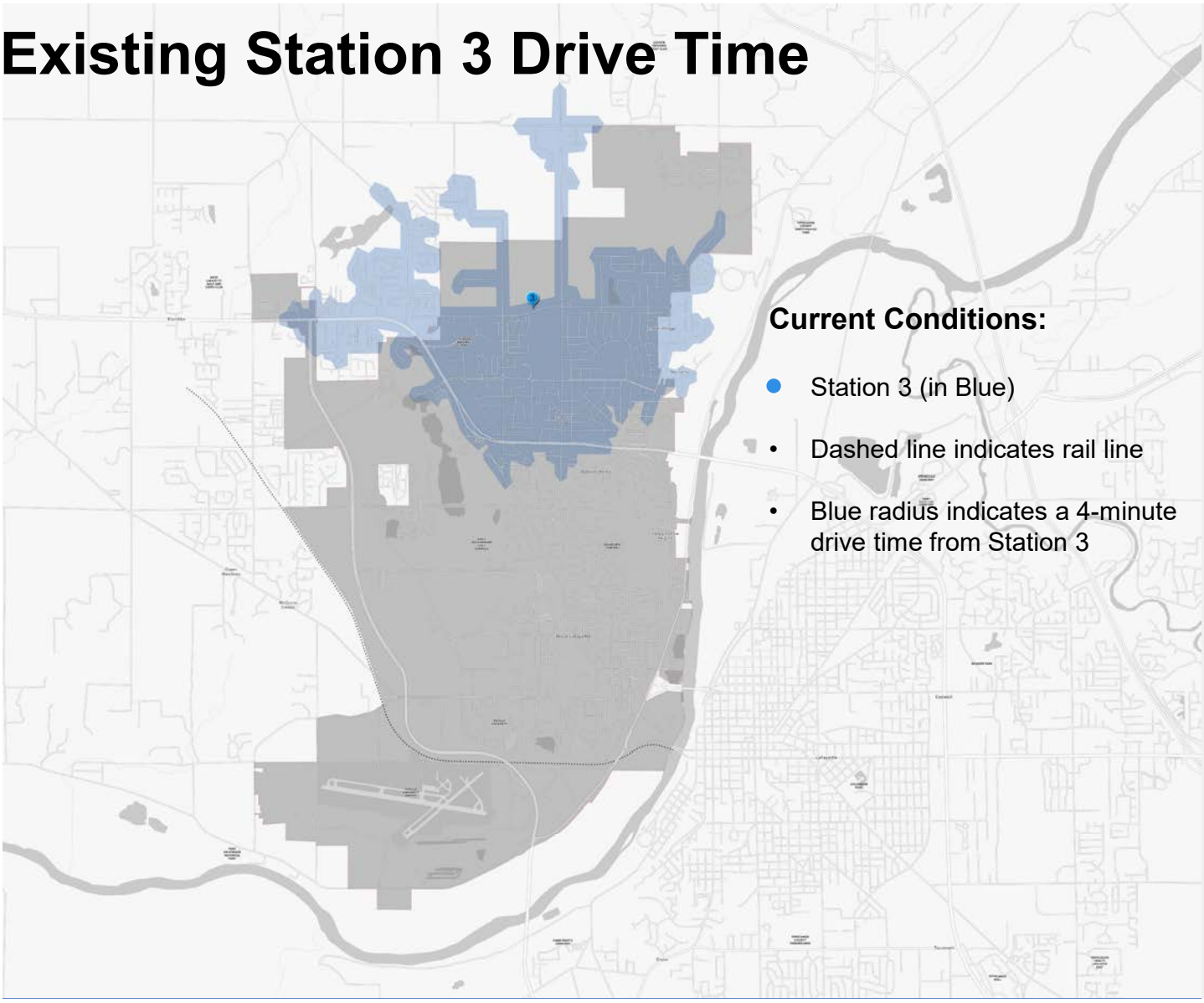


Current Conditions:

- Station 2 (in Blue)
- Dashed line indicates rail line
- Blue radius indicates a 4-minute drive time from Station 2

Location Analysis

Existing Station 3 Drive Time

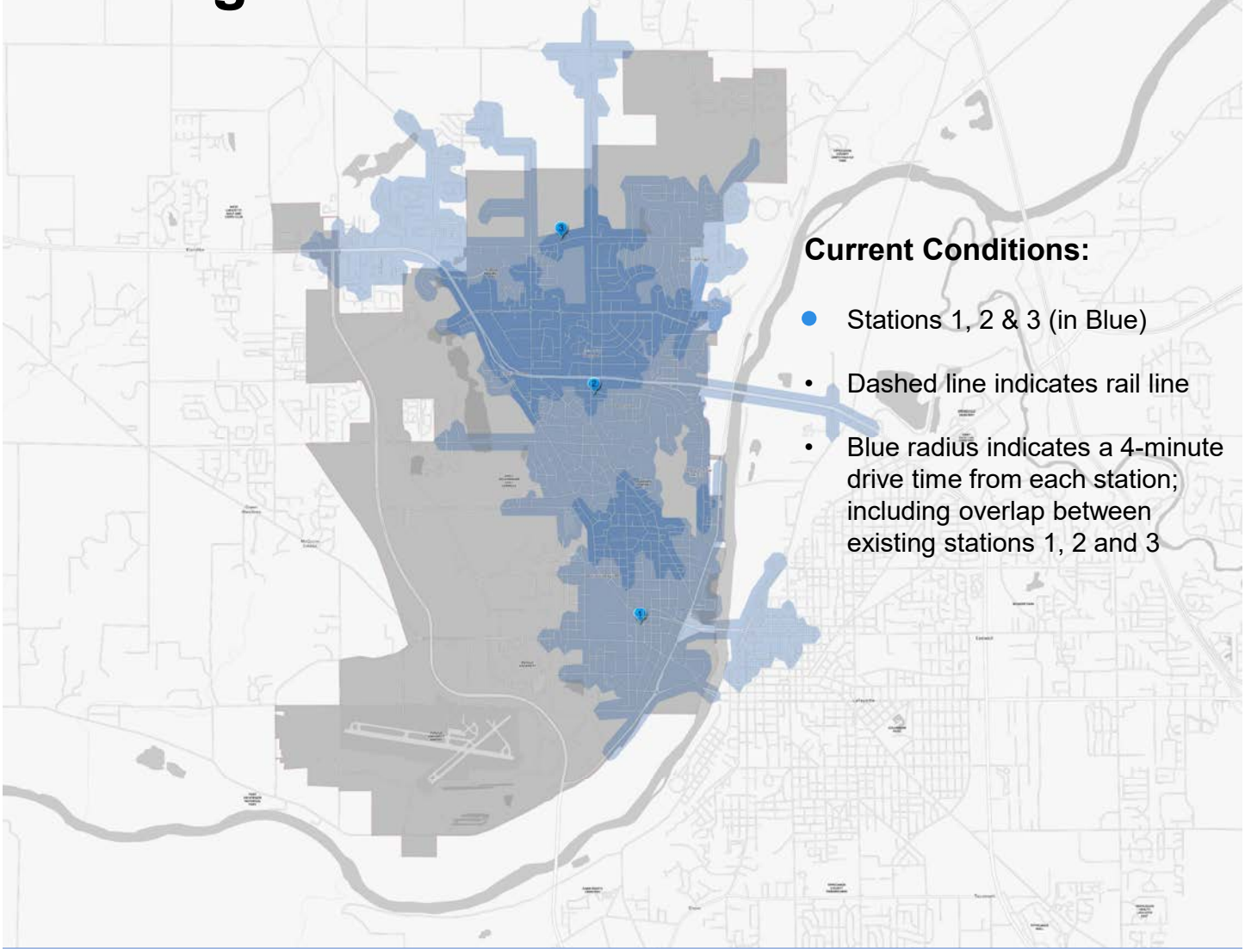


Current Conditions:

- Station 3 (in Blue)
- Dashed line indicates rail line
- Blue radius indicates a 4-minute drive time from Station 3

Location Analysis

Existing Stations Drive Times



Current Conditions:

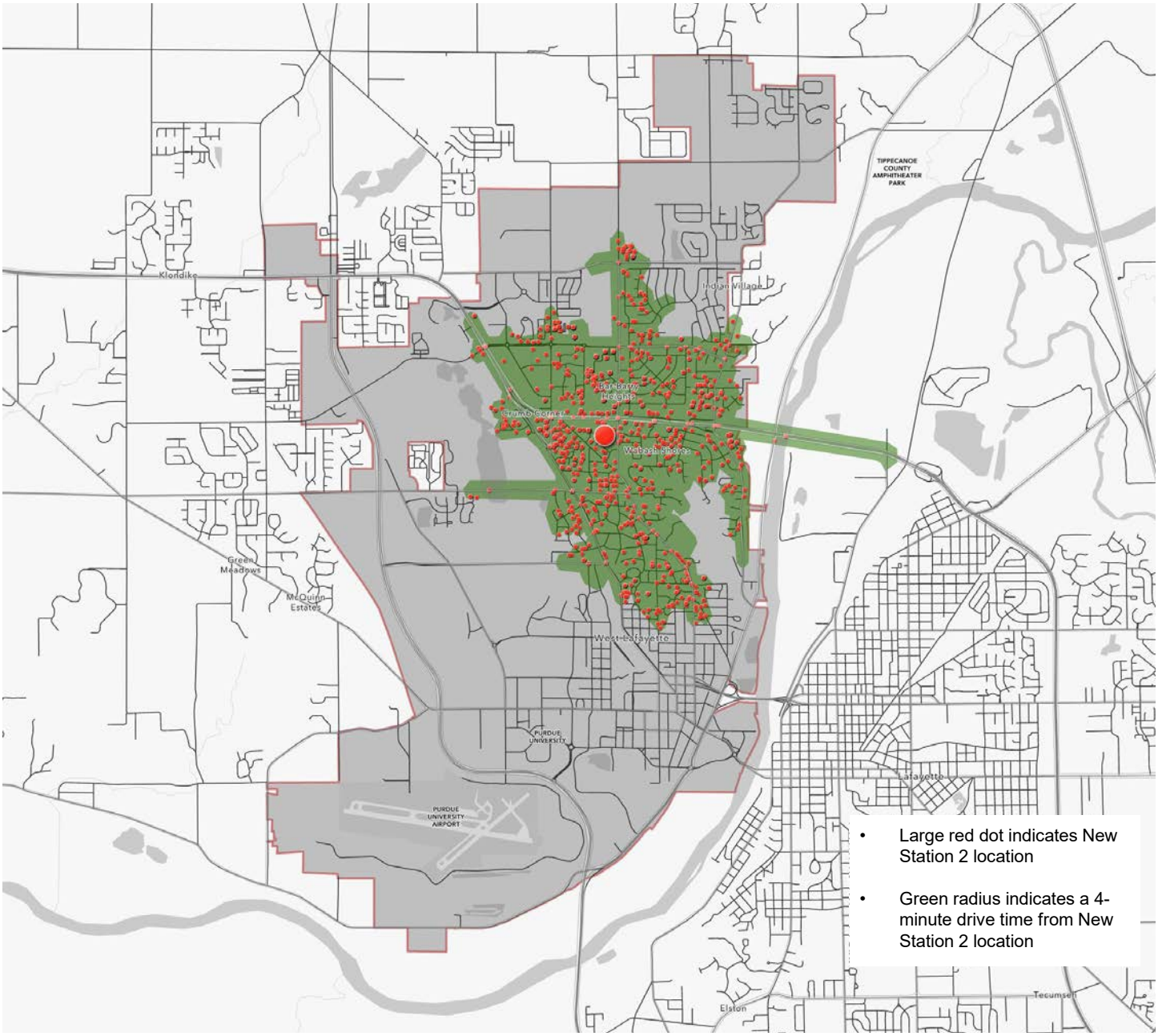
- Stations 1, 2 & 3 (in Blue)
- Dashed line indicates rail line
- Blue radius indicates a 4-minute drive time from each station; including overlap between existing stations 1, 2 and 3

Location Analysis

New Coverage – Station 2

CALL DENSITY

Historical Calls Within New Location Coverage
3,508 Calls (Historic 3 Years)

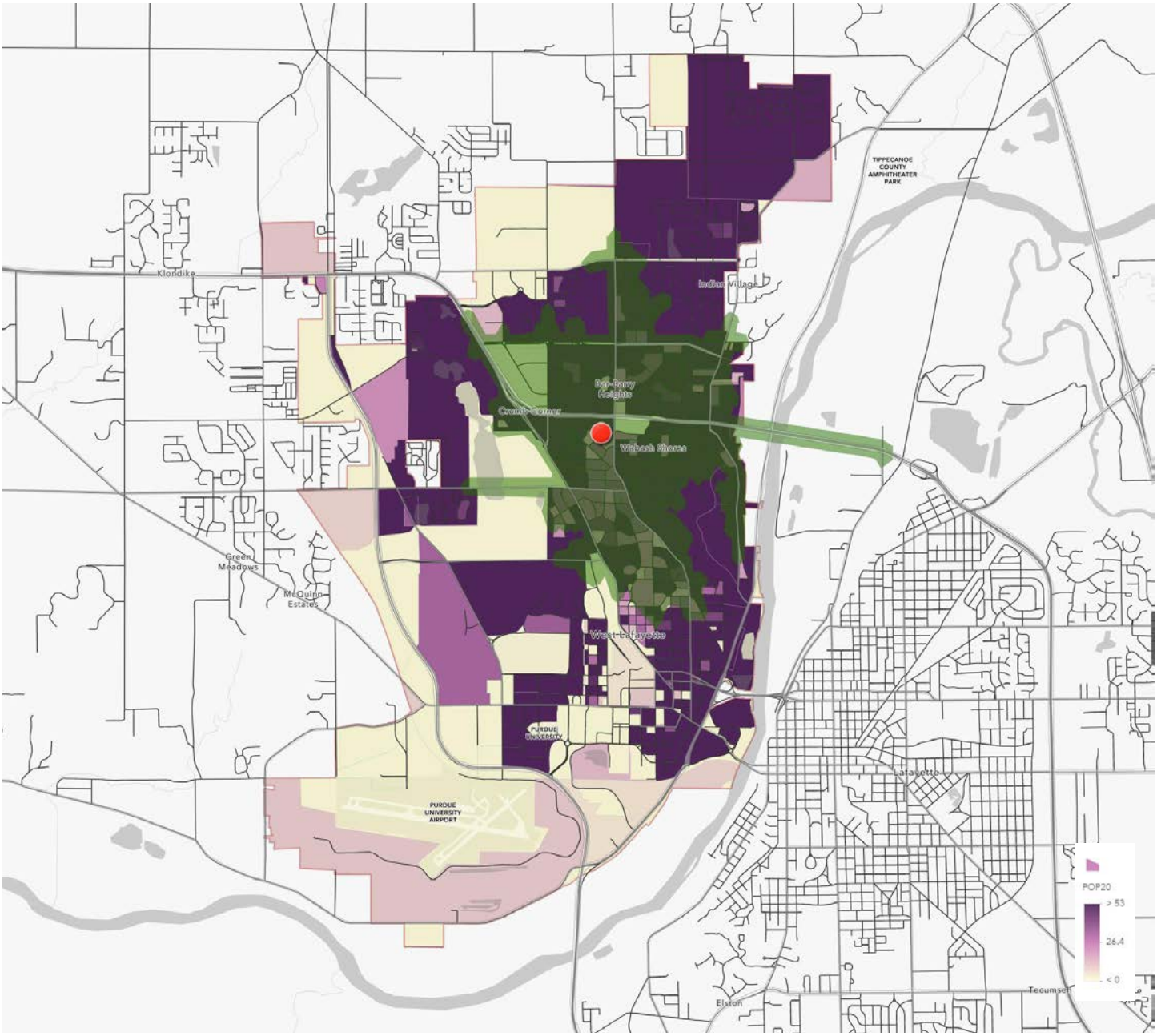


Location Analysis

New Coverage – Station 2

POPULATION DENSITY

Population Within New Location Coverage
16,190

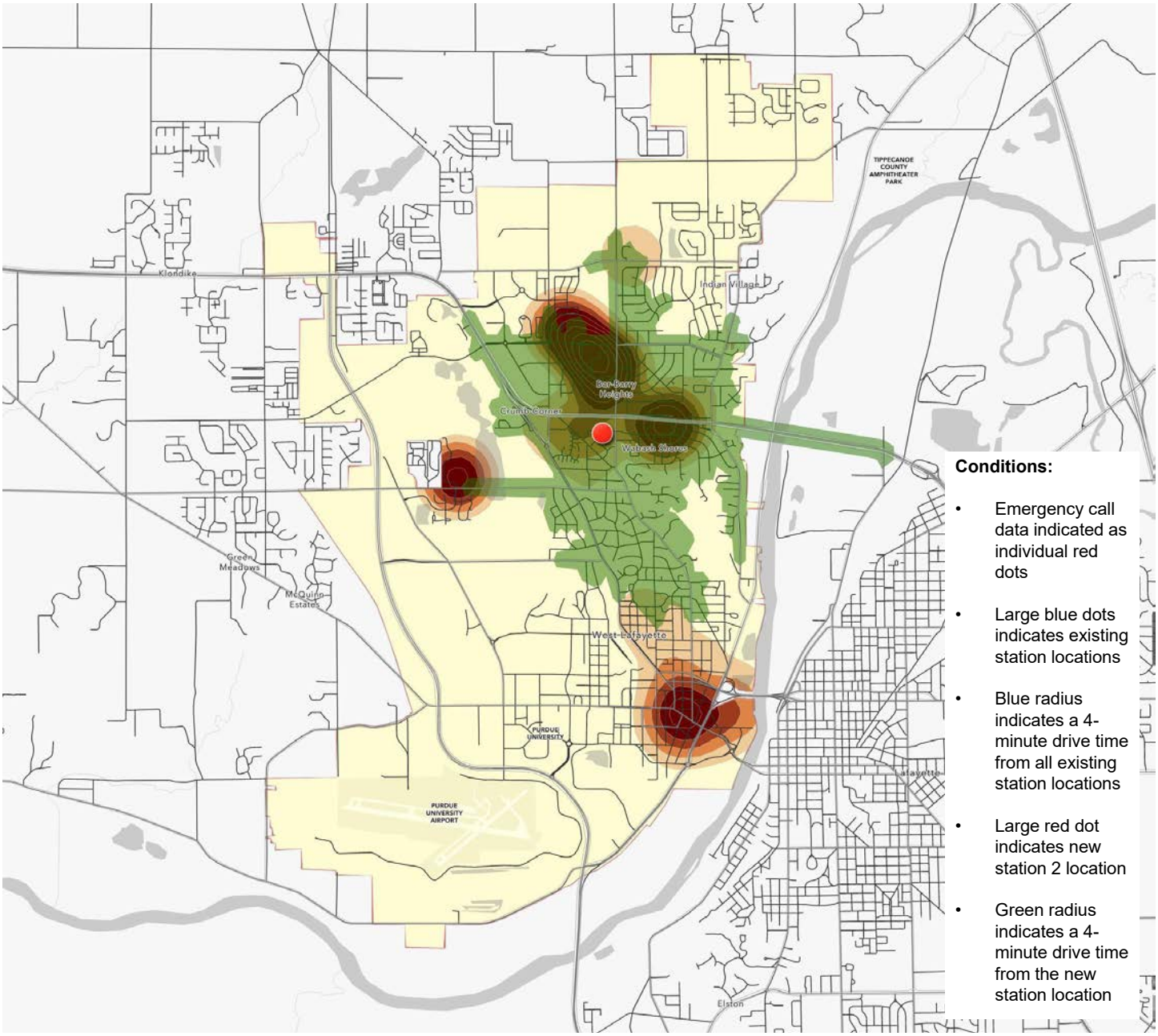


Location Analysis

New Coverage – Station 2

TOTAL CALLS – 6,417

Historical Calls Within Existing Coverage
5,720 Calls (Historic 3 Years) - 89% Within Coverage

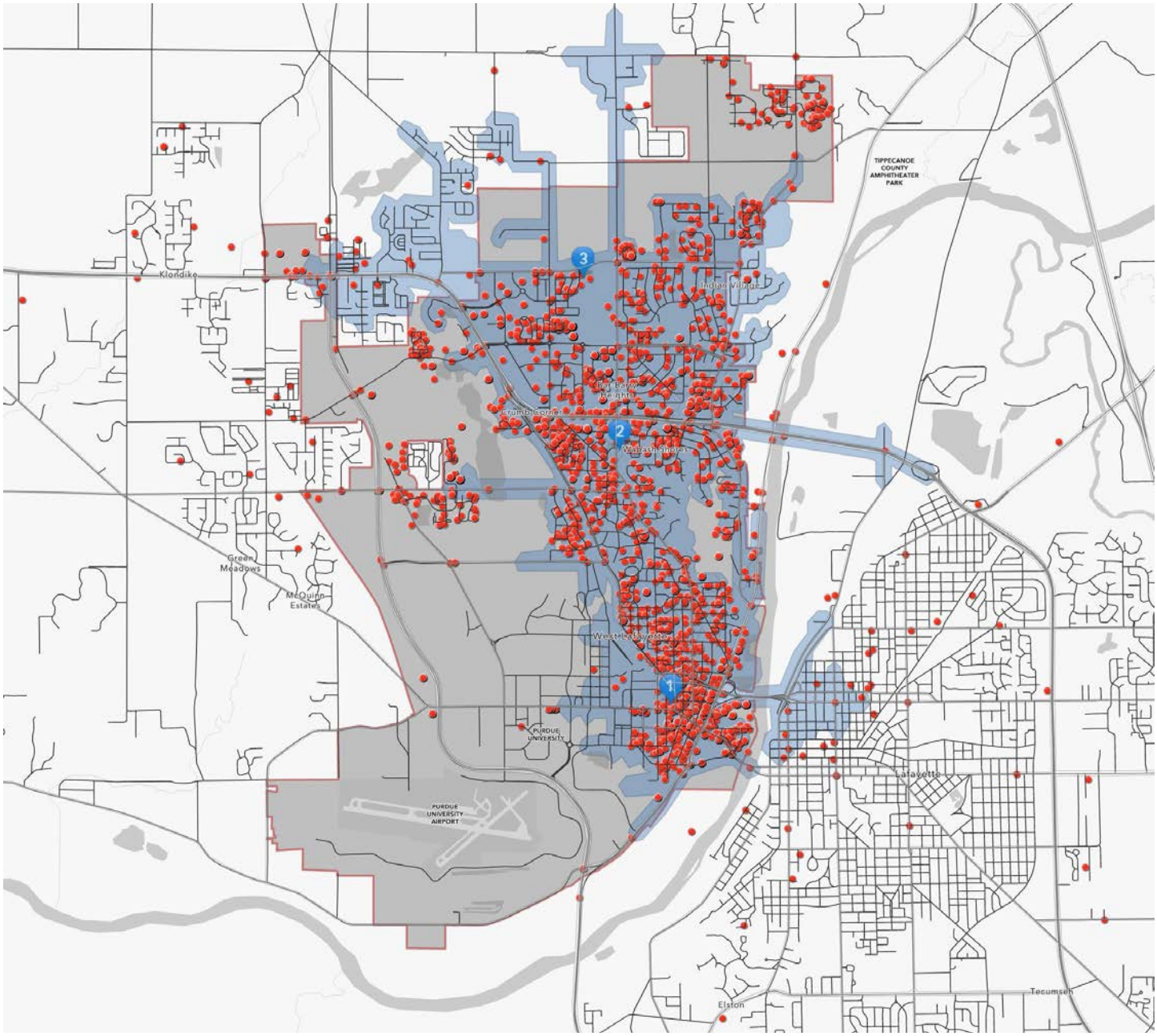


Location Analysis

New Coverage – Station 2

CALLS WITHIN COVERAGE

Calls Within New Location Coverage
Historic Calls - 3,508

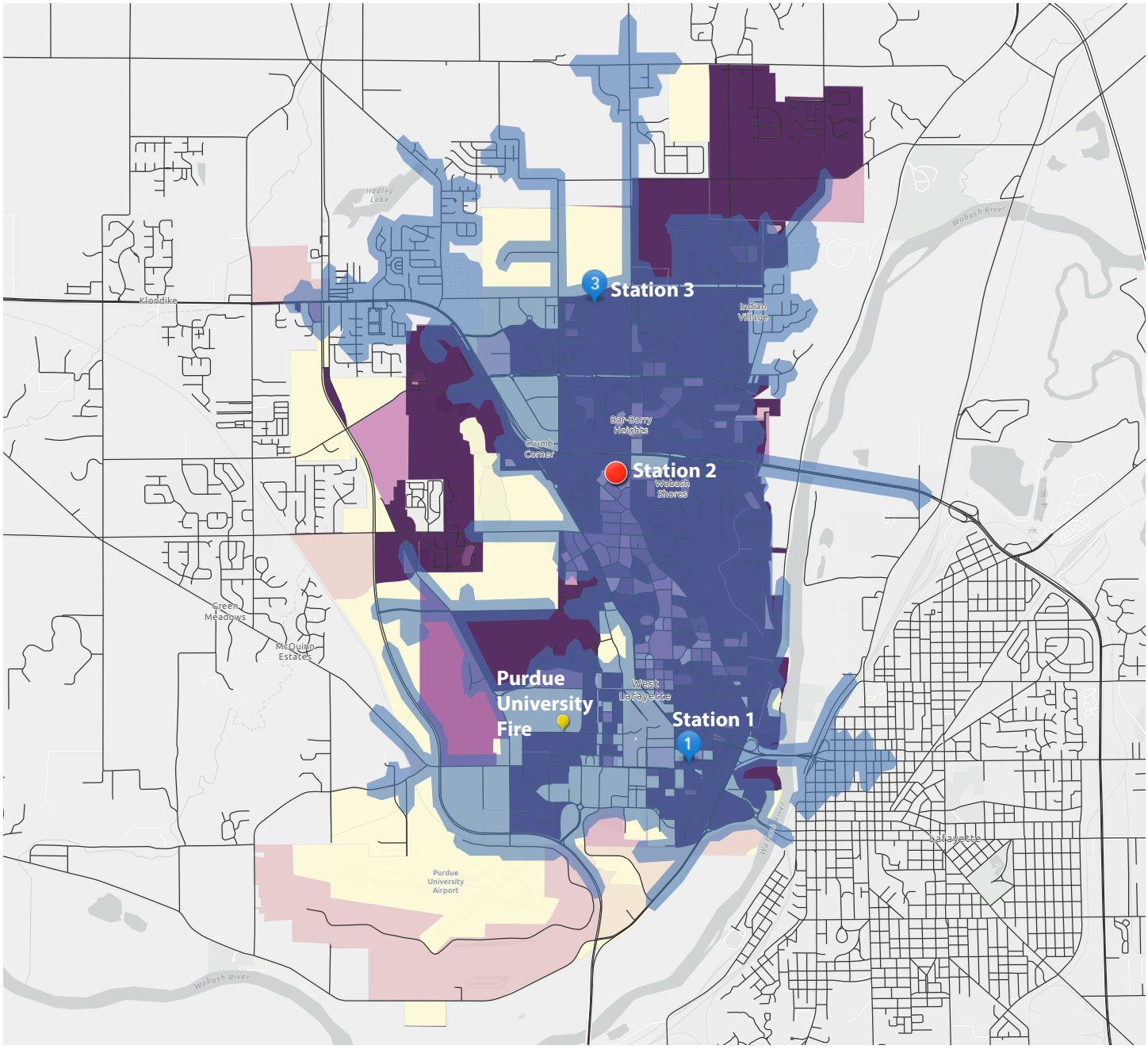


Location Analysis

Current Coverage

CITY POPULATION: 52,465

Current Coverage for City Fire Stations 1, 2, 3 and the Purdue University Fire Station
79.5% Population Inside of Coverage Area; 20.5% Population Outside of Coverage Area



Notes: 79.5% (41,745) in coverage area and 20.5% (10,720) outside of coverage area.

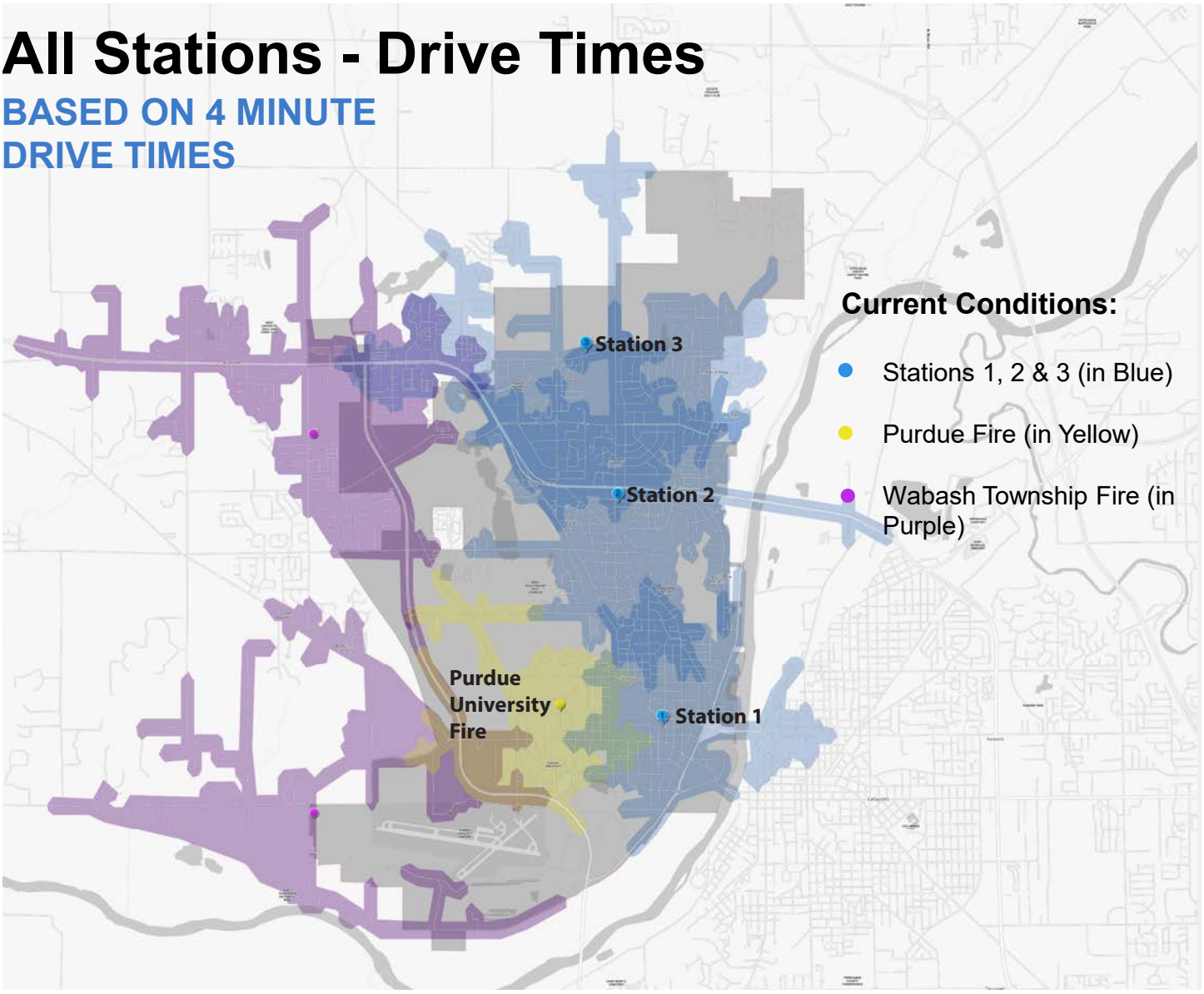
Heavy population areas on perimeter may contain Tabblock data (Census Data) from outside corporate limits.

Purdue University Fire population coverage equals 6,069. Purdue University Fire is a separate entity, not controlled by the City of West Lafayette.

Location Analysis

All Stations - Drive Times

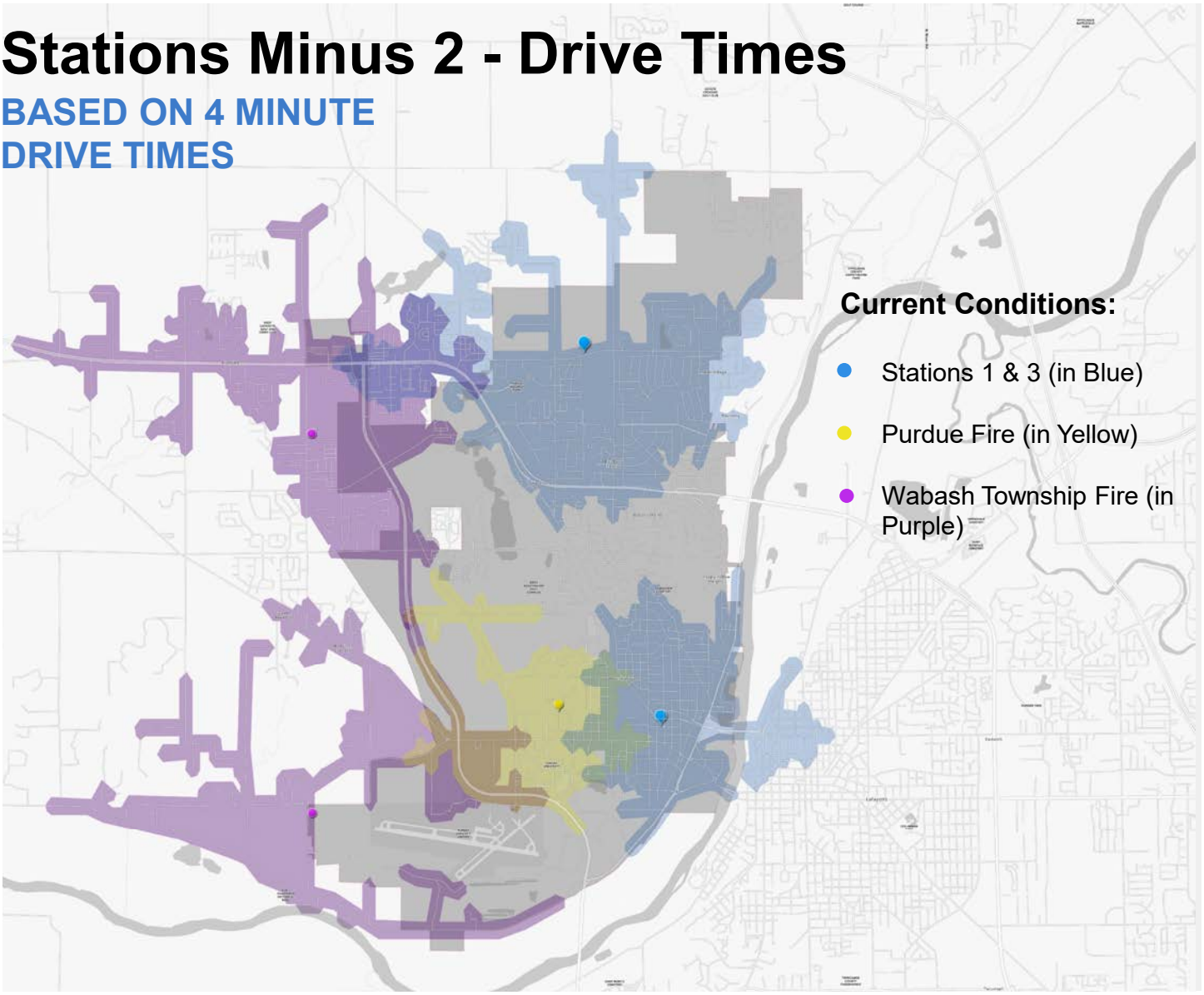
BASED ON 4 MINUTE DRIVE TIMES



Location Analysis

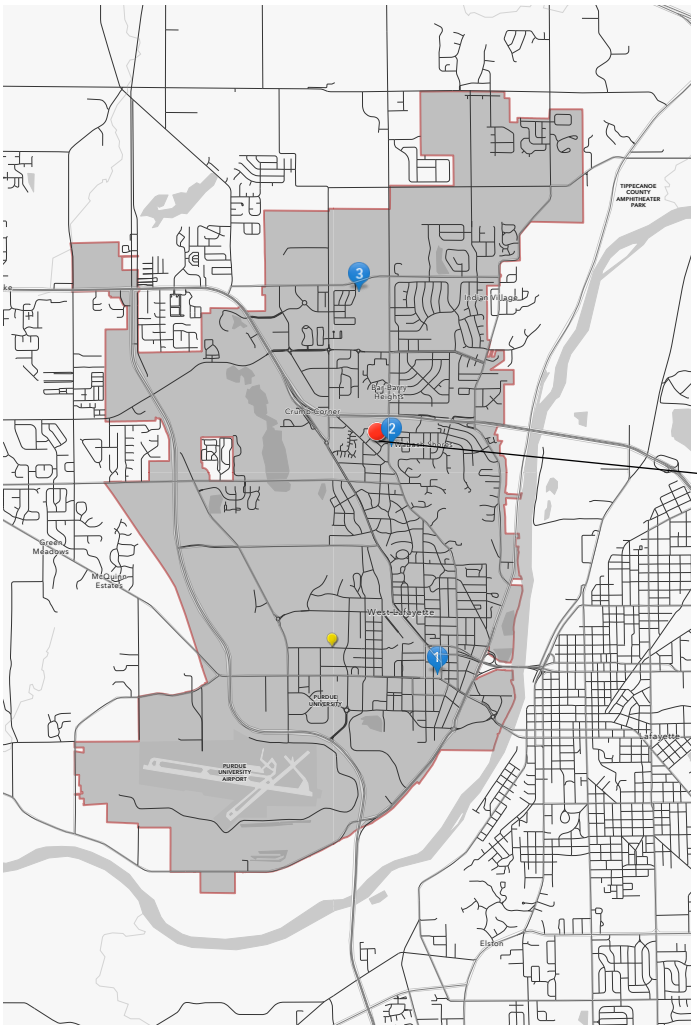
Stations Minus 2 - Drive Times

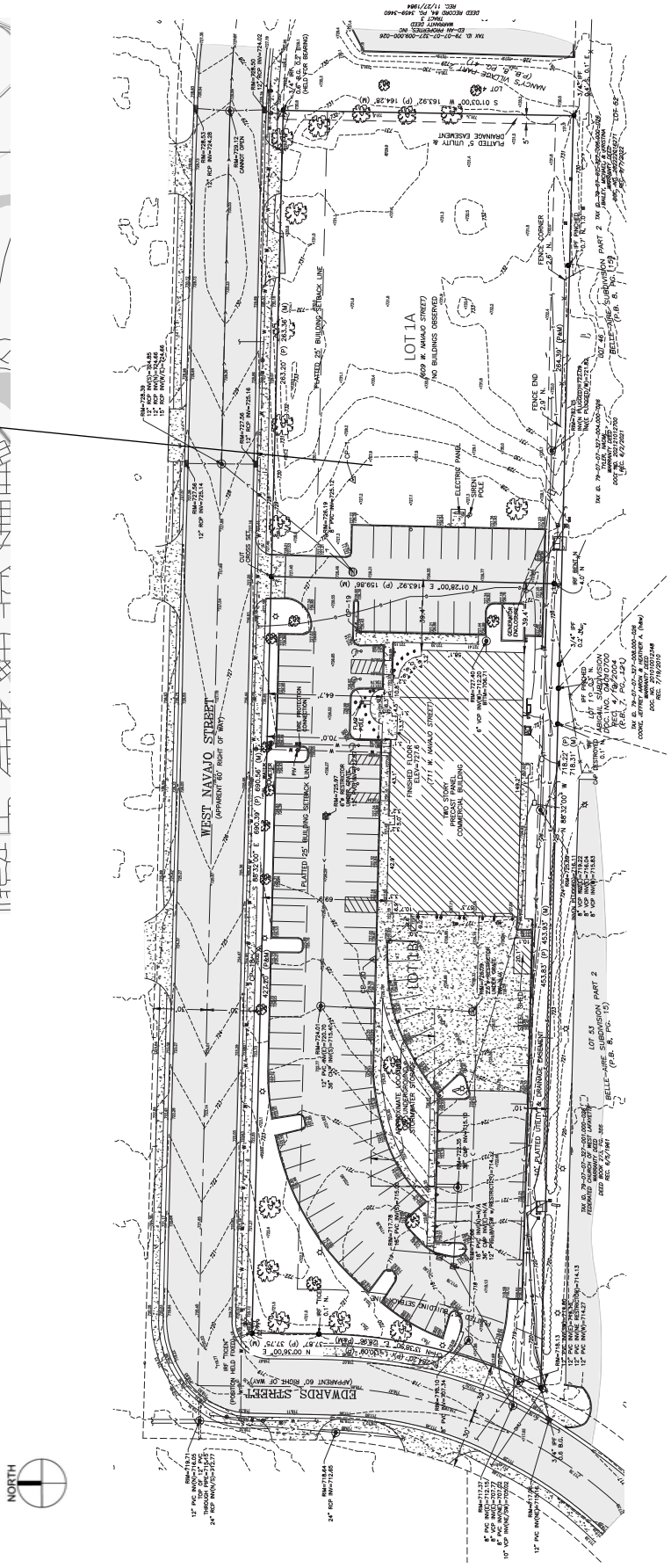
BASED ON 4 MINUTE DRIVE TIMES



CONCEPTUAL DRAWINGS

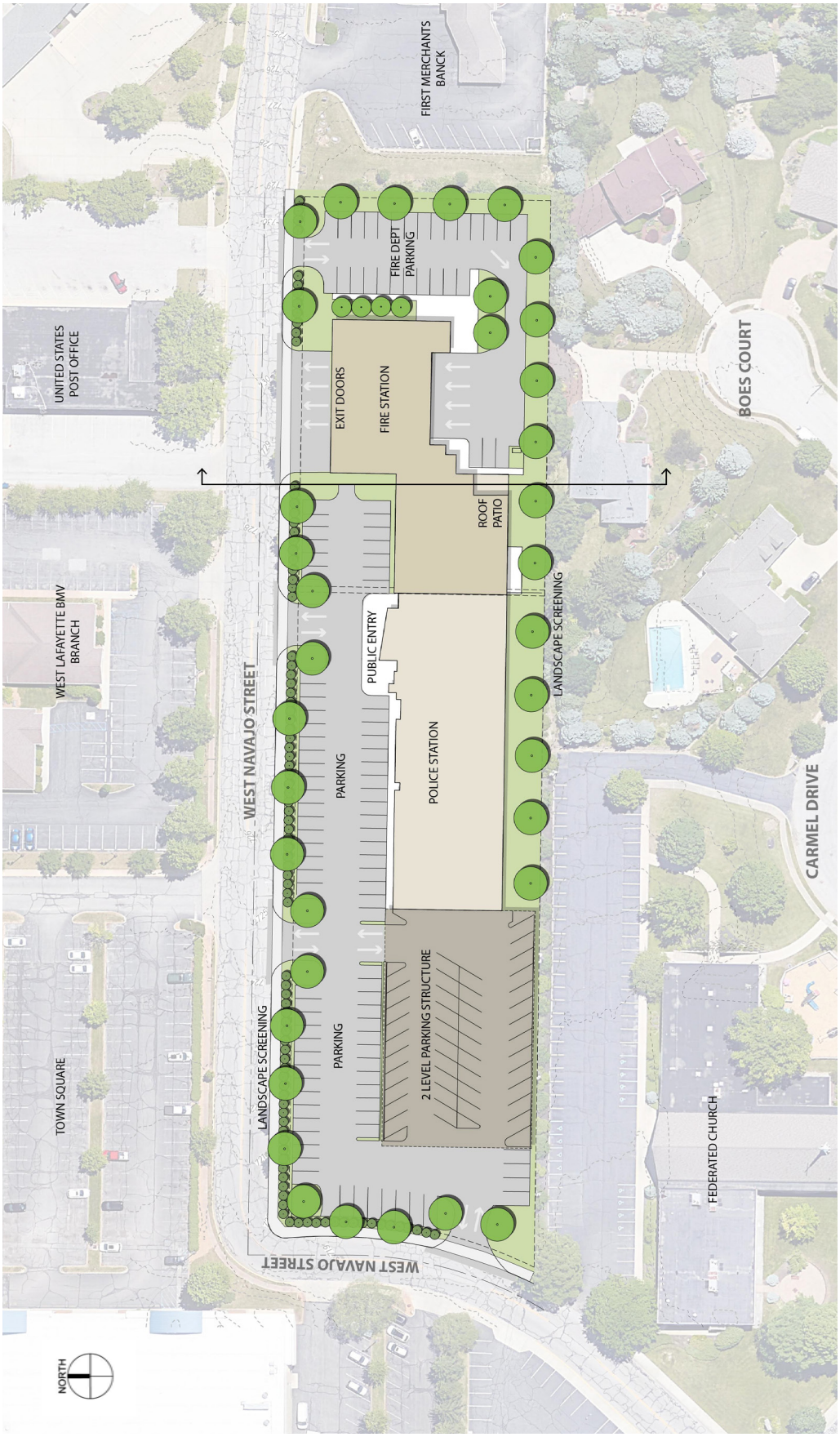
Survey With First Level Overlay



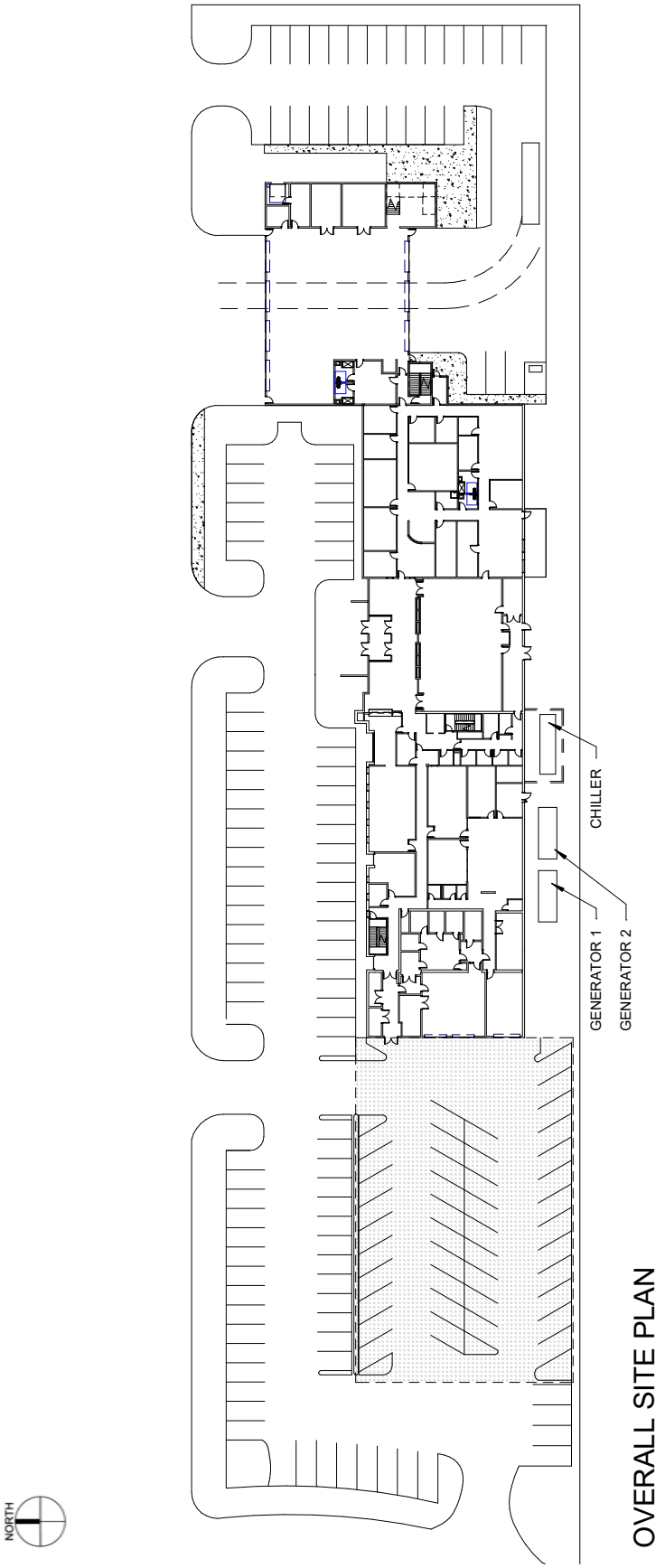


Grading Analysis

Site Plan

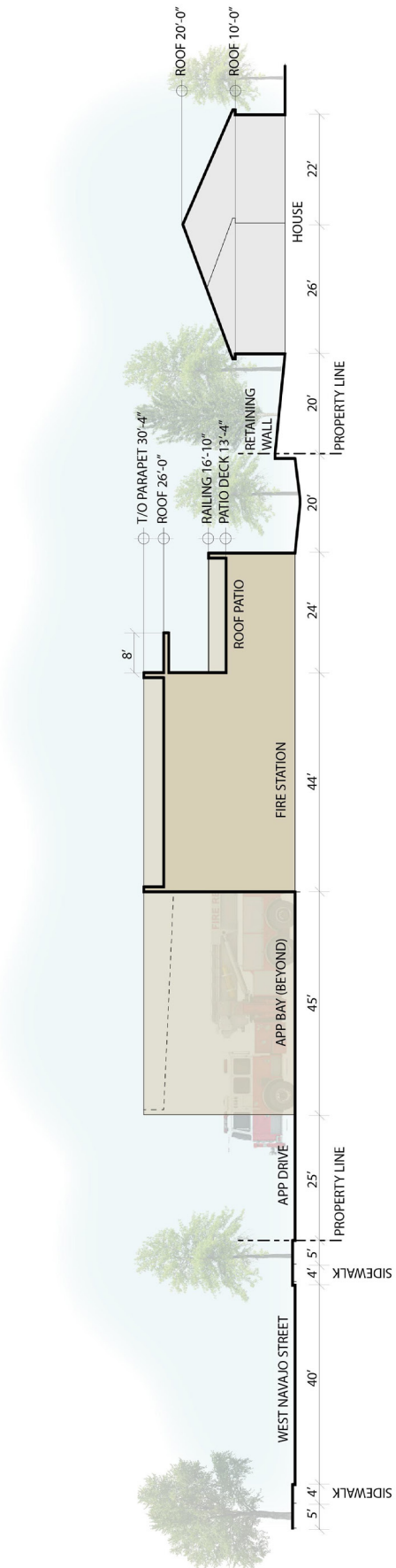

FIRST MERCHANTS BANCK
UNITED STATES POST OFFICE
FIRE DEPT PARKING
EXIT DOORS
FIRE STATION
BOES COURT
ROOF PATIO
WEST LAFAYETTE BMV BRANCH
PUBLIC ENTRY
LANDSCAPE SCREENING
WEST NAVAJO STREET
PARKING
POLICE STATION
CARMEL DRIVE
2 LEVEL PARKING STRUCTURE
LANDSCAPE SCREENING
PARKING
TOWN SQUARE
FEDERATED CHURCH
WEST NAVAJO STREET
NORTH

Site Plan



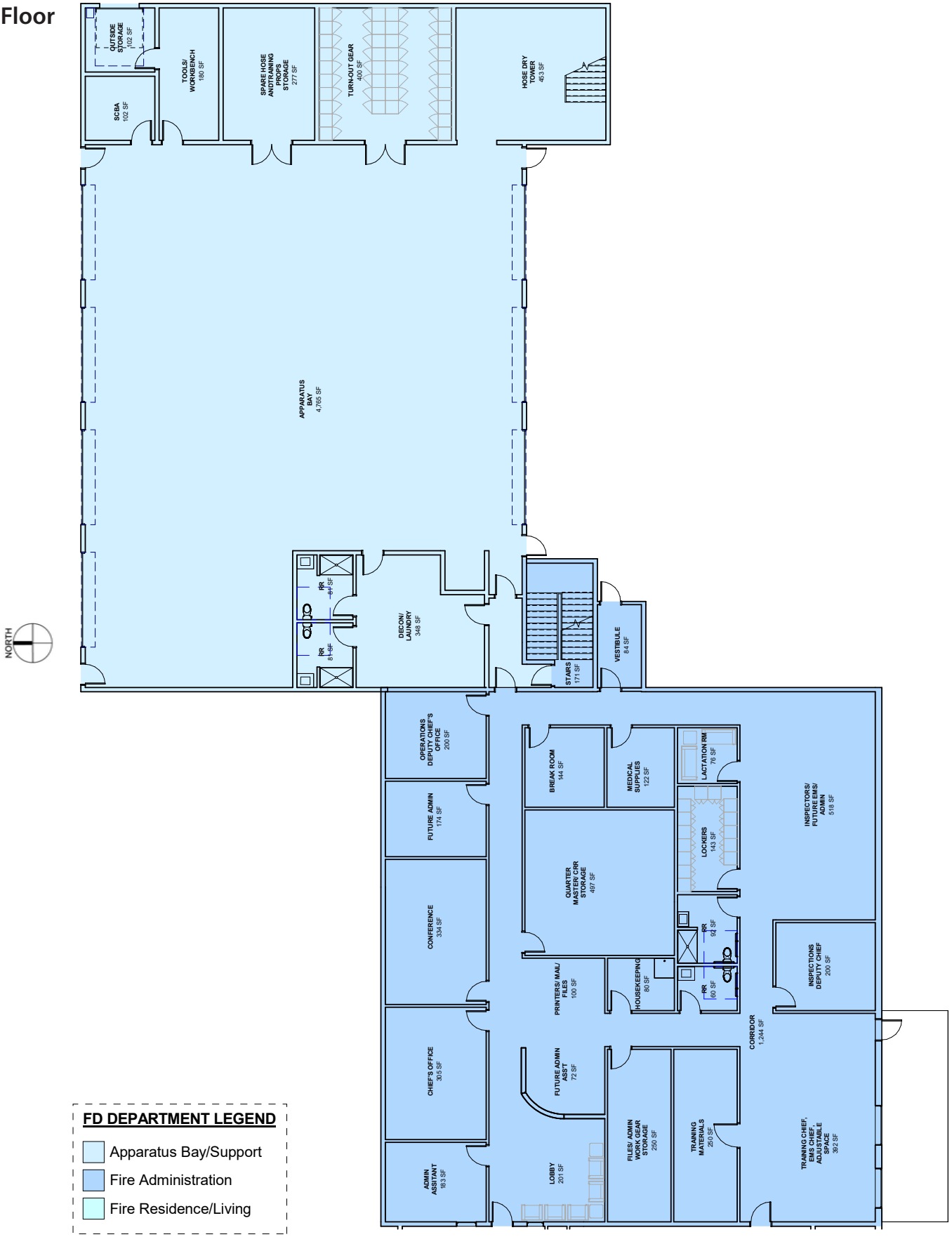
OVERALL SITE PLAN

Site Section



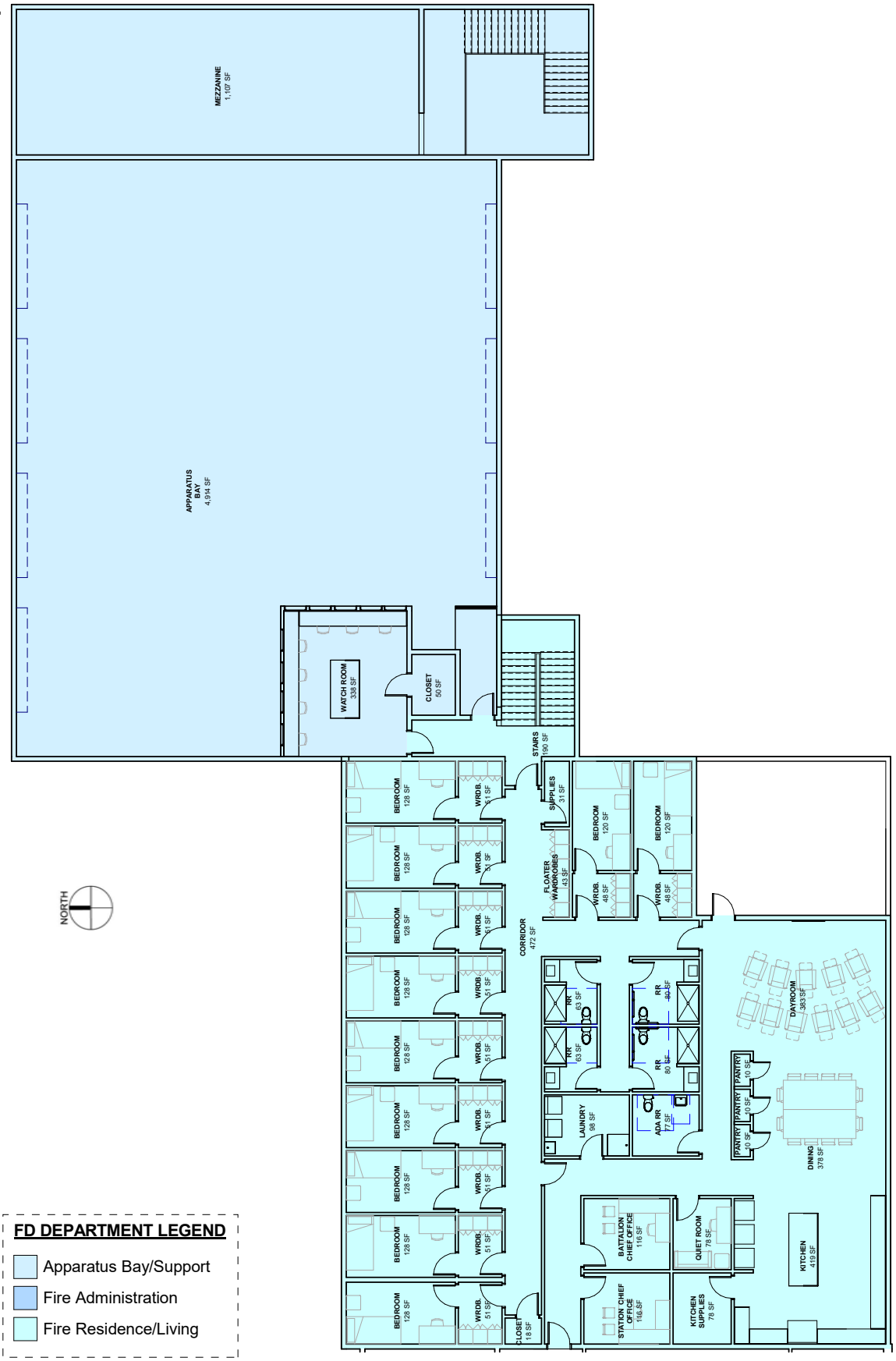
Fire Dept. Conceptual Floor Plans

First Floor



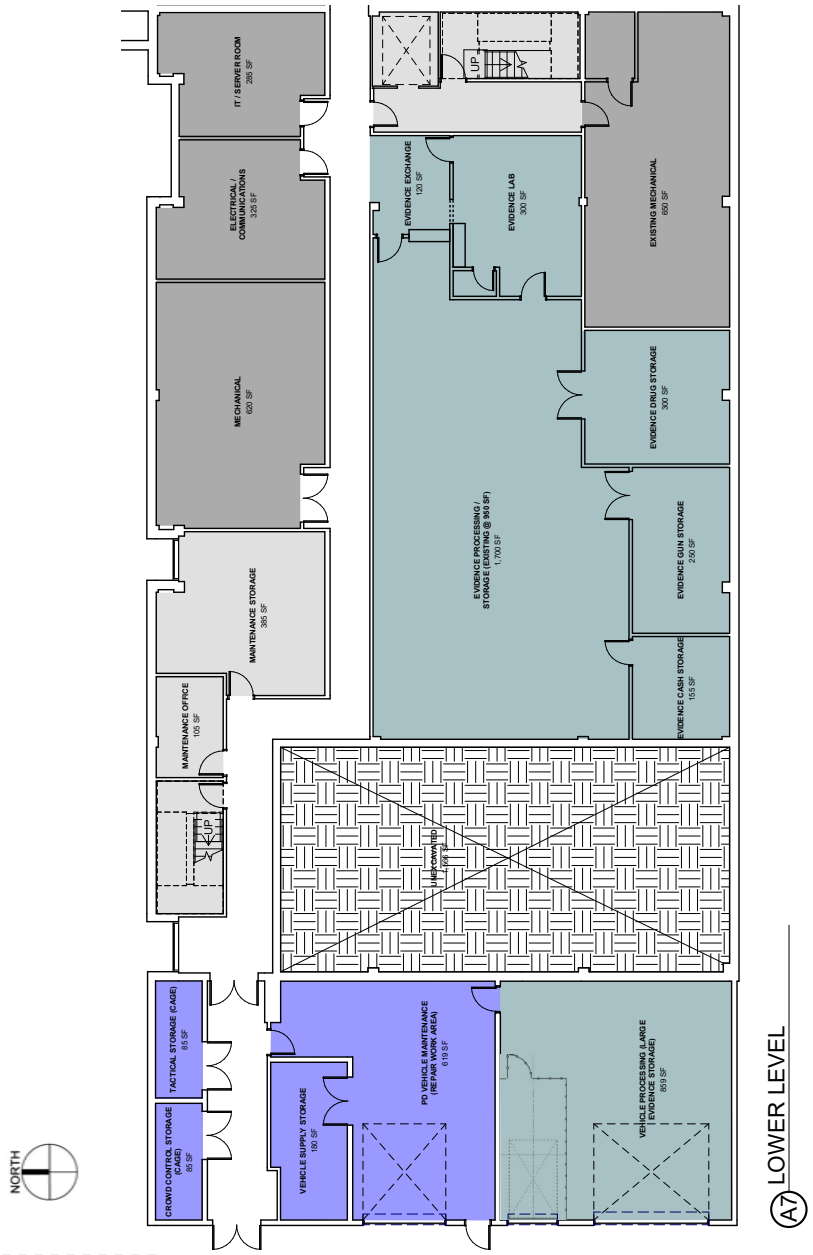
Fire Dept. Conceptual Floor Plans

Second Floor



Police Dept. Conceptual Floor Plans

Lower Level

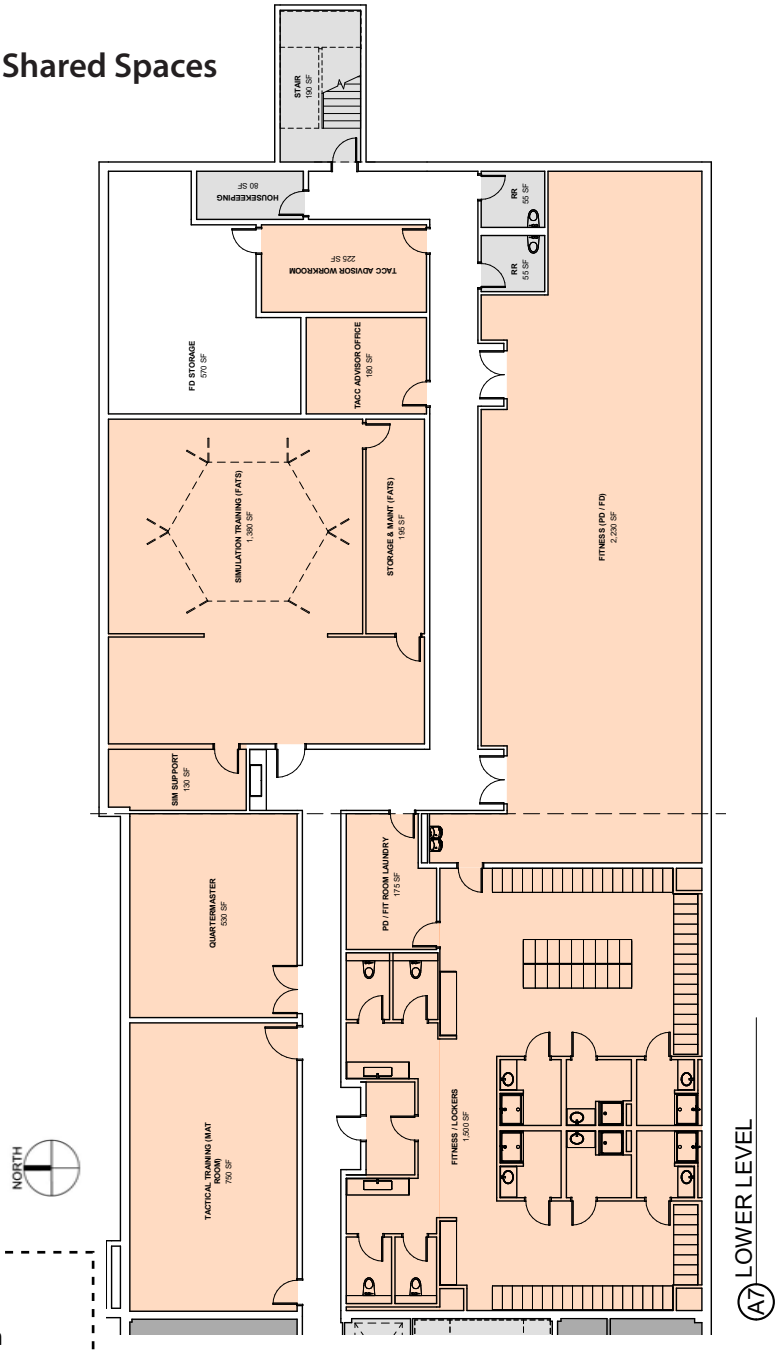


DEPARTMENT LEGEND

- Police Administration
- Patrol Division
- Processing
- Criminal Investigation
- Vehicle Maintenance
- Training & Community
- Fitness & Tactical
- Evidence
- Circulation & Bldg Support

Police Dept. Conceptual Floor Plans

Lower Level
Police Department & Shared Spaces



DEPARTMENT LEGEND

- Police Administration
- Patrol Division
- Processing
- Criminal Investigation
- Vehicle Maintenance
- Training & Community
- Fitness & Tactical
- Evidence
- Circulation & Bldg Support

Police Dept. Conceptual Floor Plans

First Floor

DEPARTMENT LEGEND

- Police Administration
- Patrol Division
- Processing
- Criminal Investigation
- Special Services
- Training & Community
- Fitness & Tactical
- Evidence
- Circulation & Bldg Support

A6 FIRST FLOOR

Police Dept. Conceptual Floor Plans

Second Floor

DEPARTMENT LEGEND

- Police Administration
- Patrol Division
- Processing
- Criminal Investigation
- Special Services
- Training & Community
- Fitness & Tactical
- Evidence
- Circulation & Bldg Support

A3 SECOND FLOOR

ELECTRICAL & MECHANICAL

Electrical Narrative

SCHEMATIC DESIGN NARRATIVE ELECTRICAL SYSTEMS

March 2, 2023

SUMMARY

This narrative

1. Describes the existing electrical distribution, communications and electronic safety and security systems at the West Lafayette Police Department building.

2. Provides an analysis of the existing electrical distribution, communications and electronic safety and security systems and provides recommendations for the renovation of the existing building and integration into combined facility with the Fire Department.

3. Provides recommendations for the new electrical distribution, communications and electronic safety and security systems for the proposed Fire Department portion of a combined facility.

CODES AND STANDARDS

The analysis of the existing electrical distribution, communications and electronic safety and security systems and the recommendations for new, are based on the following Codes and Standards:

1. Applicable Codes:
    a. 2014 Indiana Building Code (IBC)
        i. 2012 International Building Code
        ii. 675 IAC 13-2.6 – Building Code
    b. 675 IAC 17 – Electrical Codes.
        i. 2008 – NFPA 70 - National Electrical Code
        ii. Indiana Electrical Code, 2009 Edition.
    c. 2010 Indiana Energy Conservation Code (IECC)
        i. ASHRAE 90.1 2007
        ii. 675 IAC 19.3
    d. 2014 Indiana Fire Code (IFC)
        i. 2012 International Fire Code
        ii. 675 IAC 13-2.6

2. Applicable Standards:
    a. 2010 - NPFA 72 – National Fire Alarm Code
    b. NFPA 780 - Standard for the Installation of Lightning Protection Systems
    c. The IESNA Lighting Handbook – Tenth Edition.
    d. ANSI/IESNA RP-1 – American National Standard Practice for Office Lighting.
    e. ANSI/IESNA RP-31 – Recommended Practice for the Economic Analysis of Lighting.

Electrical Narrative

WEST LAFAYETTE POLICE DEPARTMENT EXISTING BUILDING CONDITIONS

Police Department Existing Electrical Distribution

The current Police Department building was constructed in 2003.

The building is currently served by a single 1200A utility service at 208Y/120V, 3-Phase, 4-Wire. This feeds an exterior fusible service disconnect switch mounted in the generator enclosure, which in turn feeds an Automatic Transfer Switch (ATS) located in the Main Mechanical Room in the southeast corner of the Basement. The ATS is an ASCO unit.

The ATS is also fed by a 400KW Caterpillar diesel generator unit housed in a weatherproof enclosure with sub-base diesel fuel tank.

A 1200A, 208Y/120V, 3-Phase, 4-Wire Main Distribution Panelboard 'MDP' is located adjacent to the ATS in the Main Mechanical Room and is fed by the ATS, which transfers the entire building load from the utility service to the generator upon loss of utility power. Panelboard 'MDP' is a Siemens P series distribution type panelboard.

Main Distribution Panelboard 'MDP' feeds the following loads:

1. Roof Top Units: 'RTU-1', 'RTU-2', 'RTU-3' and 'RTU-4'.
2. Elevator.
3. Branch Circuit Panelboards: 'LBA', 'LBB', 'L1A', 'L1B', 'L1C', 'L2A', 'L2B' and New Panelboard added on the Second Floor with the Public Safety Center.

With the exception of the new panelboard installed for the Public Safety Center renovation, the remainder of the electrical distribution equipment appears to be original to the 2003 building construction. The original panelboards are Siemens P1 series. The panelboards, generator and ATS all appear to be in good condition and to have been well maintained. However, given the 20-year age of the equipment, the type of circuit breakers in Panelboard 'MDP', the generator and the ATS complete testing and repairs/replacement is recommended.

The receptacle distribution in the building is reasonably well laid out for the majority of the rooms. However, the receptacles in spaces that have been renovated or repurposed are not always appropriately located, or adequate for the current equipment. This is especially true in areas where the technology has evolved, including rooms with stored electronic equipment requiring charging, or where computer workstations have been added. Police Department staff noted that the Training Room lacked enough receptacles for large groups with laptops. Another request was for USB-equipped receptacles for charging of personal devices.

Electrical Narrative

Police Department Existing Lighting and Controls

The lighting throughout the building is fluorescent and appears to be original to the building construction. While the fixtures are in good condition and have been well maintained, fluorescent lighting is not as energy efficient as LED and requires more maintenance. In addition, the fixtures, having surpassed 20-years, have reached the end of their expected life and components such as ballasts will likely start failing.

Police Department staff also indicated that they did not like the parabolic louvered fluorescent fixtures used in the office areas.

The lighting controls consist of manual switches located at the entry doors. The manual switches provide limited control of the lighting and no adjustment of light levels to accommodate varying tasks or uses. Additionally, the manual switches do not meet current Indiana Energy Code requirements for automatic control of lighting to conserve energy when a space is unoccupied.

Police Department Communications Systems

The existing building communications infrastructure is served from an MDF room located within the Main Mechanical Room in the Basement. This location is generally suitable for hard wired Ethernet cabling throughout the building based upon EIA/TIA distance limitations but is not ideally located for access or routing of cabling. The room is also smaller than desirable for the number of systems supported.

The Ethernet cabling appears to be a mixture of original cabling and newer Category 6 cabling. The Category 6 cable is marked as "Riser" rated which is not permitted to be installed in plenum spaces, unless installed in conduit. It does not appear that the existing cabling is installed in conduit in the plenum spaces above the ceilings.

WiFi coverage is installed throughout the building and appears to provide reasonable coverage. Police Department staff did mention that robust wireless coverage is needed as well as multichannel coverage to separate public from City and County networks.

The building has a public address system used for general announcements and individual paging. The existing system appears to work well and serves the needs of the department.

The current telephone system is a Cisco Voice-over-IP (VoIP) system. The age of this system is not currently known.

The audio-visual system supporting computer, DVD and other sources is installed in the Training Room presenter's podium and displays to a wall mounted monitor at the "front" of the room. Police Department staff indicated that the system serves the current uses of the space.

There is an audible/visual duress alarm system with alarm stations in: Sallyport, Decontamination, Breathalyzer, Interview Rooms and First Floor and Second Floor. Stations report back to alarm panel in the First Floor corridor outside the Training Room. Police Department staff indicated that the system serves the current needs.

Electrical Narrative

There are several audio/video intercom systems at public entry points used to communicate with dispatch and the Records Department to request entry. These systems are reported to work well.

Police Department Safety and Security Systems

There is an extensive access control system installed throughout the building to secure office and operational areas from the public areas. This system is original to the building construction, and while it has been maintained, it has exceeded its expected operating life and is exhibiting equipment failures and user issues. Police Department staff also noted that finding service support and obtaining replacement parts is difficult.

The building security camera system was recently upgraded and consists of an Avigilon digital recording system and Ethernet cameras. The cameras are located inside and exterior to the building and cover: building entry doors, public areas, garage and site including parking lots. Police Department staff indicated camera coverage was good.

The building security camera system also includes cameras in holding cells and interview rooms and some hidden cameras. These cameras are used for documenting interviews and the Police staff indicate they work well.

The access control and security camera systems are housed in a common equipment cabinet located in the MDF. Originally these systems appear to have been integrated to allow automatic camera pull-up of doors when card access occurred; however, this integration is no longer functioning.

The fire alarm system in the building is a Notifier AFP-200 addressable system. There appears to be good notification appliance (horns and strobe) coverage throughout the building. The system is in good condition, and although it is a discontinued product, parts are still available.

PROPOSED NEW COMBINED FIRE AND POLICE DEPARTMENT FACILITY

Proposed Electrical Distribution

A proposed new electrical service will serve the entire facility with 3000A at 480Y/277V, 3-Phase, 4-Wire. The service would feed a Main Switchboard 'MDHL' located in a new Main Electrical Room in the Lower Level. This switchboard would then feed a 480Y/277V Distribution Switchboard 'SDHL' located in a second electrical room in the Lower Level as well as a 208Y/120V Distribution Panelboard 'SDLL1' (through a step-down transformer) located in the Main Electrical Room. Distribution Switchboard 'SDHL' would feed 208Y/120V Distribution Panelboard 'SDLL2' (through a step-down transformer) located in the second Lower Level electrical room. Intent is that the main and secondary electrical rooms be separated to serve approximately half of the overall facility.

Lower Level 480V and 277V branch circuits for lighting and small equipment would be served from branch circuit panelboards fed from Switchboards 'MDHL' and 'SDHL1'.

Electrical Narrative

Lower Level 208V and 120V branch circuits for receptacles and small equipment would be served from branch circuit panelboards fed from Switchboards 'SDLL1' and 'SDLL2'.

First Floor 480V and 277V branch circuits for lighting and small equipment would be served from branch circuit panelboards fed from Switchboards 'MDHL' and 'SDHL1'.

First Floor 208Y/120V loads would be fed through Distribution Panelboards 'SDL11' and 'SDL12', located in electrical rooms at each end of the First Floor, which in turn would feed branch circuit panelboards.

Second Floor 480V and 277V branch circuits for lighting and small equipment would be served from branch circuit panelboards fed from Switchboards 'MDHL' and 'SDHL1'.

Second Floor 208Y/120V loads would be fed through Distribution Panelboards 'SDL21' and 'SDL22', located in electrical rooms at each end of the First Floor, which in turn would feed branch circuit panelboards.

Proposed Electrical Distribution Equipment		
Equipment Tag	Description	Characteristics
'MDHL'	Service Entrance Switchboard	3,000 A, 408Y/277V, 3-Ph, 4-W. Draw-out LSIG main circuit breaker and LSI branch circuit breakers.
'SDHL1'	480V Distribution Switchboard	1,600 A, 408Y/277V, 3-Ph, 4-W. Draw-out LSIG main circuit breaker and LSI branch circuit breakers.
'SDLL1'	208V Distribution Switchboard	600 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'SDLL2'	208V Distribution Switchboard	600 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'SDL11'	208V Distribution Switchboard	800 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'SDL12'	208V Distribution Switchboard	800 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'SDL21'	208V Distribution Switchboard	600 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'SDL22'	208V Distribution Switchboard	600 A, 208Y/120V, 3-Ph, 4-W. Draw-out LSI main circuit breaker and LSI branch circuit breakers.
'T-SDLL1'	Dry-Type Trans. for 'SDLL1'	225KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.
'T-SDLL2'	Dry-Type Trans. for 'SDLL2'	225KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.
'T-SDL11'	Dry-Type Trans. for 'SDL12'	300KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.
'T-SDL12'	Dry-Type Trans. for 'SDL12'	300KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.
'T-SDL21'	Dry-Type Trans. for 'SDL21'	225KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.
'T-SDL22'	Dry-Type Trans. for 'SDLL22'	225KVA, 480V Delta to 208Y/120V, 3-Ph, 4-W.

Electrical Narrative

Proposed Electrical Branch Circuit Panelboards		
Equipment Tag	Description	Characteristics
'HPL1' – 'HPL2' (Qty 2)	480V Branch Panelboards	200 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'HP11' – 'HP12' (Qty 2)	480V Branch Panelboards	200 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'HP21' – 'HP22' (Qty 2)	480V Branch Panelboards	200 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'LPL1' – 'LPL8' (Qty 8)	208V Branch Panelboards	200 A, 208Y/120V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'LP11' – 'LP110' (Qty 10)	208V Branch Panelboards	200 A, 208Y/120V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'LP21' – 'LP28' (Qty 8)	208V Branch Panelboards	200 A, 208Y/120V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.

EV Charging Stations

EV charging stations are proposed for selected general visitors, public and for the City-owned vehicle parking spaces. In addition, consideration will be given to potential future electric Fire Department Vehicles. Proposed EV Chargers and locations are:

1. General Parking (Public and Employee): 10 Level 3 charging stations.
2. Parking Garage (City-Owned Vehicles): 30-40 Level 3 charging stations.
3. Fire Department Apparatus Bay: Power provisions for future truck charging equipment.

Proposed Emergency and Standby Electrical Distribution

A new on-site generator system is proposed, having a two-branch distribution system. The first branch would be for life safety loads consisting of egress lighting, exit signs, fire alarm and emergency communications required for occupant safety. The second branch would be for standby power for all other facility loads. This will remove the need for battery powered emergency lighting systems, which will reduce long term maintenance requirements and costs. Each of the two branches will require a separate Automatic Transfer Switch (ATS).

A two-generator set-up is also proposed to provide redundancy and ability to service one generator while maintaining the other for emergency service. The two-generator set-up also provides for some redundancy with integration of priority load shedding. The proposed generators would be configured to start together, with the first taking up the life safety loads and the second connecting for the full building load. This would require paralleling gear for the generators. The generators are also proposed as diesel fueled with sub-base fuel tanks sized for a 48-hour run time. Diesel is selected for the fuel source to provide true, on-site power generation due to the mission critical nature of the facility. Natural gas can be investigated as an option

Electrical Narrative

for the fuel, depending upon the assessed reliability of the natural gas supply and consideration of the increased cost of the natural gas fueled generators in the size needed.

Generators are proposed to be housed in Level 2 Sound enclosures with critical application mufflers to reduce the noise generated. The generators can further be housed within a utility yard, or walled enclosure to conceal the units. The generators should be located close to the main electrical room and with truck access for fueling (if diesel) and servicing.

Proposed Emergency Life Safety and Standby Equipment		
Equipment Tag	Description	Characteristics
Generator 1	Diesel Fueled Emergency Generator	1,000 KW, 408Y/277V, 3-Ph, 4-W. Sound level 2 attenuating enclosure. 24-Hour Sub-base day tank.
Generator 2	Diesel Fueled Emergency Generator	1,000 KW, 408Y/277V, 3-Ph, 4-W. Sound level 2 attenuating enclosure. 24-Hour Sub-base day tank.
'EDHL'	Paralleling Switchgear	3,000 A, 408Y/277V, 3-Ph, 4-W. Draw-out LSIG main circuit breaker and LSI branch circuit breakers.
'ATS-LS'	Life Safety Branch 480V ATS	200 A, 480Y/277V, 3-Ph, 4-W, 4-Pole with overlapping neutral.
'ATS-OS'	Optional Standby Branch 480V ATS	3,000 A, 480Y/277V, 3-Ph, 4-W, 4-Pole with overlapping neutral.
'HLSL1' (Qty 1)	480V Life Safety Panelboards	100 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'HLS11' (Qty 1)	480V Life Safety Panelboards	100 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.
'HLS21' (Qty 1)	480V Life Safety Panelboards	100 A, 408Y/277V, 3-Ph, 4-W. Molded case main and 42 thermal magnetic branch circuit breakers.

Proposed Grounding

A ground loop consisting of #3/0 bare copper wire is proposed to be installed around the perimeter of the facility and tied to metal structure at an average of every 60-feet. The main ground point is proposed to be a ground bus located in the Main Electrical Room.

Dry-type transformers are proposed to be grounded by means of a dedicated grounding conductor installed separate from the feeder conductors.

The MDF and other telecom rooms are proposed to have a dedicated ground bus, connected back to the main building grounding point in the Main Electrical Room using #3/0 copper conductors.

Electrical Narrative

Lightning Protection System

A lightning protection system will be provided to protect structure and safely divert the energy of a lightning strike to the earth while minimizing damage to the facility. The lightning protection will be designed to NFPA 780 - Standard for the Installation of Lightning Protection Systems. The installer will be required to be certified with the Lightning Protection Institute and the installing Contractor will provide a UL Master Label for the completed system. The system will use a common building ground loop.

Proposed Interior Lighting

Lighting will be designed utilizing a combination of direct, indirect and direct/indirect luminaires utilizing Light Emitting Diode (LED) technology as the prime illumination source. The exact type of luminaire to be utilized in each respective space will depend on room layout, function, ceiling type, aesthetic requirements and control requirements, among other factors.

In general, lighting will be designed per the requirements contained in the Illumination Engineering Society of North America (IESNA) standards with particular attention paid to the following publications:

1. The IESNA Lighting Handbook – Tenth Edition.
2. ANSI/IESNA RP-1 – American National Standard Practice for Office Lighting.
3. ANSI/IESNA RP-3 – Lighting for Educational Facilities.
4. ANSI/IESNA RP-31 – Recommended Practice for the Economic Analysis of Lighting.

Lighting luminaires will be selected based upon:

1. Suitability for use in the respective area in which they will be installed.
2. Desired architectural aesthetic of the space.
3. Energy efficiencies required to obtain goals for lighting power densities.
4. Minimizing maintenance.

Average lighting levels for each specific building space will be designed in accordance with the following requirements. All illumination levels are horizontal values referenced to a work plane located 30 inches above finished floor unless noted otherwise.

1. Classrooms: 50 foot-candles at each desktop with full range dimming.
2. Collaboration: 40 foot-candles.
3. Conference Rooms: 40 foot-candles with full range dimming.
4. Kitchenettes: 50 foot-candles.
5. Lounges: 10-20 foot-candles.
6. Offices: 25-30 foot-candles general lighting with 50 foot-candles on task areas.
7. Restrooms: 20-30 foot-candles general lighting with 45 foot-candles at the mirror.
8. Corridors: 10-15 foot-candles at the floor level.
9. Mechanical and Electrical Rooms: 15-25 foot-candles at floor level.
10. Stairwells: 10-15 foot-candles maximum, 1-5 foot-candles minimum
11. Vehicular Maintenance Bays: 50 foot-candles.

Electrical Narrative

12. Vehicular Storage Bays: 20 foot-candles.
13. All Other Areas: Default to IESNA recommended standards.

Luminaires utilizing Light Emitting Diode (LED) technology will be provided wherever possible based on the following criteria:

1. Suitability for use in the respective area in which they will be installed.
2. Suitability to render color with proper color temperature.
3. Efficacies required to obtain goals for lighting power densities.
4. Life and maintenance requirements.
5. Lighting control requirements.

All light emitting diode (LED) lighting luminaires shall utilize electronic drivers.

Emergency and egress lighting will be provided in accordance with relevant codes by means of a combination of "Nightlight" circuits and switched circuits connected to the respective building's emergency power source.

Illuminated exit signage will be provided in accordance with relevant codes and will be connected to the respective building's emergency power source.

Proposed Exterior Lighting

Building exterior Lighting will be designed and limited to utilize building mounted luminaires. Exterior lighting will be designed to meet the exterior lighting power densities as prescribed by ASHRAE 90.1, where applicable.

Site exterior lighting for parking, roadways and pedestrian walks will be selected based upon areas of coverage and site layouts. Exterior lighting will be designed to meet the exterior lighting power densities as prescribed by ASHRAE 90.1, where applicable. Sources for exterior lighting environments will be Light Emitting Diode (LED) technology, as determined during design and industry standards. Luminaires will generally be constructed from cast aluminum material. All luminaires will be Dark Skies meeting IESNA "Full Cutoff" criteria to reduce light pollution and maximize energy efficiency.

Proposed Lighting Controls

Various degrees of lighting controls will be provided for this facility to provide functionality, optimize energy performance and to comply with the requirements of the Indiana Energy Conservation Code. It is anticipated that this facility will utilize a combination of automatic occupancy sensor lighting controls, networkable relay-based lighting control systems, daylight harvesting systems and dimming systems.

Unit type occupancy sensors with manual "on" switch will be utilized in all offices, storage rooms, restrooms and similar spaces. These controls will be designed such that the occupant of the room must turn the lights on via a switch located at the room entrance and the occupancy sensor will automatically turn off the lights in the respective space if it determines the space is unoccupied.

Electrical Narrative

Relay-based lighting control systems will be provided for control of lighting in common areas such as corridors, reception areas, open office areas, large open workroom areas and similar spaces, as well as for control of exterior lighting. Relay lighting control is also proposed for fire department equipment bays. The system will provide manual, time-of-day scheduling, occupancy sensor control, and where appropriate, automatic photocell control ability to the respective areas. The systems could be designed to be networked and/or stand alone, as determined during the design process. A relay panel will be provided on each floor to serve that floor.

Parking garages are proposed to have light fixtures with individual motion sensors to raise lighting from a minimal level to full intensity based upon pedestrian and vehicular activity.

Daylight harvesting systems will provide automatically adjustable full range dimming based on ambient lighting levels. Daylight harvesting will be provided in open office areas and open workroom areas along the exterior walls of the building where there will be the possibility of a large natural light contribution due to windows.

Architectural dimming systems will be provided for dimming control of luminaires in the meeting rooms, conference rooms and training rooms. The system will provide full range dimming capability of multiple sources and zones as required via local control stations located in the respective spaces. The exact features and requirements of each architectural dimming system will be determined during design.

Mechanical rooms, electrical rooms and telecommunications rooms will be provided with standard manually operated switches for control of the lights in the respective spaces.

Network Infrastructure Communications Systems

New Ethernet communications infrastructure is proposed for the new facility. This is proposed as a common distribution system with the capability of segmenting the infrastructure for the Fire and Police Departments if needed. A new MDF room is proposed for the main network electronics and demarcation point for Wintec fiber optic outside plant. New infrastructure will allow for build-out while maintaining operation of current infrastructure. Based upon the anticipated use of the Police Department as a command center during emergencies, the MDF will be designed as a "mission critical" facility.

Proposed backbone between the Main Data Frame (MDF) and the Telecommunications Rooms (TR) would be single-mode fiber optic cable. Cabling to the workstations and devices would be Category 6A. Proposed equipment and devices served on the network are:

1. Workstation computers.
2. VoIP telephones.
3. Wireless access points (WAP).
4. Security cameras.

Equipment racks, cabinets, patch panels and fiber and copper cabling infrastructure will be provided under the construction project. The following equipment will either be relocated by the City, if currently owned, or purchased from City's preferred vendor:

Electrical Narrative

1. Network data switches, routers and firewalls.
2. Servers.
3. Workstation computers.
4. VoIP telephones.

The MDF and TR's will have power back-up with the building. The City's preference is to have rack mounted, point-of-use UPS units for the generator starting ride-through. The UPS units will be provided as part of the network data equipment purchased by the City.

Audio/Visual Systems

Provisions for Audio/Visual systems consisting of power, boxes and conduits will be provided in designated rooms. Systems will be designed for meetings, conferencing and presentations. Audio/visual equipment, installation and set-up will be by the City's preferred vendor. Spaces assumed to have Audio/video rough-ins are:

1. Training Room.
2. Conference Rooms.

Message Boards

Bulletin board monitors will be provided in public spaces and internally within Fire and Police Department offices for display of messages. Messages will be transmitted from Reach Media. Equipment will be by the City's preferred vendor; power, boxes and conduit will be provided under the construction project.

Fire Department First Arriving message boards and Police Department status boards will be provided within departmental spaces. Equipment will be by the City's preferred vendor; power, boxes and conduit will be provided under the construction project.

Fire Department Dispatch Intercom

Communications and dispatch alerting system for the Fire Department will be installed in sleeping rooms. Equipment will be by the City's preferred vendor; power, boxes and conduit will be provided under the construction project.

Card Access and Security Systems

A new access control system will be provided for the facility. This system will be a DNA Fusion system and will be integrated into the City-wide access database. In addition, the system may be integrated with the security camera system for entry logging. Card reader stations will be a combination of proximity detectors, for card and fob credentials, and keypads. The system will have door contacts for status monitoring and use motion sensors for request-to-exit, but will rely on hardware sets for actual unlocking of the doors for egress. Remote door release will be set-up to be controlled from dispatch and Records.

Electrical Narrative

System electronics, software and programming will be by the City's preferred vendor; power, conduit, boxes and cabling will be provided under the construction project. The system will be used for access to the following doors:

1. Exterior entry doors.
2. Doors separating operations and office areas from public corridors, lobbies and similar spaces.
3. Doors to mechanical, electrical and communications rooms.
4. Doors to evidence and laboratory spaces.

The existing security camera system will be relocated and expanded under the proposed project. Expansion of the system and additional cameras will be by the City's preferred vendor; power, conduit, boxes and cabling will be provided under the construction project. It is anticipated that security cameras will be a mixture of fixed and multiple view (180-degree, 360-degree) and will be provided for coverage of the following areas:

1. Exterior parking areas.
2. Exterior entry doors.
3. Interior vestibules and lobbies.
4. Interior public corridors (both Fire and Police).
5. Holding cells.
6. Breathalyzer area.
7. Interview rooms.
8. Outside Evidence Room.

Intercom and Paging Systems

It is anticipated that an entry intercom system will be provided allowing request for entry through audio/video communications with dispatch and Records. The system will allow for remote door release and ideally will be connected to the security camera system for documenting visitors. The following doors will be provided with audio/visual entry intercom stations:

1. Exterior entry doors.
2. Interior vestibule entry doors.
3. Secured interior doors where public, or staff without clearances, may need entry.

It is anticipated that the facility will have a dedicated building wide paging system. The paging will be zoned to allow announcements to the Police Department separately from the Fire Department, or to the entire facility. The paging system will be interconnected to the telephone system for paging through any phone. Zoning is anticipated as follows:

1. Entire facility all-call for emergency notification.
2. Police Department all-call for notifications.
3. Fire Department all-call for notifications.
4. Fire Department sleeping rooms for roll calls.

Electrical Narrative

Fire and Police Department Radio Systems

The facility will have a repeater system for the Lower Level to provide coverage on the public safety band. The repeater equipment will be housed in Code required 2-hour rated room and the antenna cabling will be protected in conduit. Equipment, including UPS backup and installation, will be by the City's preferred radio vendor; power, conduit, boxes and cabling will be provided under the construction project.

The Police Department Patrol Radio system will be replaced with new equipment by the City's preferred radio system vendor; power, conduit, boxes and cabling will be provided under the construction project.

The Fire Department Radio system will be replaced with new equipment by the City's preferred radio system vendor; power, conduit, boxes and cabling will be provided under the construction project.

Emergency Command Center

The new facility will include an Emergency Command Center. The necessary communications equipment is currently owned by the City and is located in the existing Police Station. This equipment will be relocated by the City's preferred vendor; power, conduit, boxes and cabling will be provided under the construction project.

Fire Alarm System

A new addressable fire alarm system is proposed to serve the entire facility to provide common notification in the event of alarms.

The complete system will include all required manual and automatic initiating devices such as pull stations, smoke detectors, heat detectors, water flow switches, etc. The complete system will include all signaling devices such as audible/visible signals, visible only signals, sprinkler alarm bell, etc. The system will monitor sprinkler system actuation. The system will monitor and control smoke evacuation system functions, fan shutdown functions, door hold open release functions and elevator recall functions. The system will fully comply with the Americans with Disabilities Act (ADA), Indiana Fire Code and all other state codes.

Special Shielding Requirements for Evidence Storage

A shielded cell phone storage unit will be incorporated into the Evidence Storage area to prevent remote access and wiping of cell phones.

Basic Electrical Materials

All wiring and cabling for power distribution, branch circuitry, low voltage systems, etc. will be routed throughout the facility utilizing conduits.

Separate closed conduit systems will be provided for each power distribution system and each low voltage system such as:

1. Normal Power.
2. Emergency Power.

3. Equipment Power.
4. Audio/Visual Systems.
5. Fire Alarm System.
6. Card Access and Security Systems.
7. Low Voltage and Digital Lighting Control Systems.

In general conduit types will be as follows:

1. Electrical Metallic Tubing (EMT): Permitted for branch circuit conduits and conduits smaller than 1-1/4" trade size.
2. Rigid Metal Conduit (RMC) - Steel: Required for all feeders and conduits larger than 1-1/4" trade size.
3. Intermediate Metal Conduit (IMC): Permitted in lieu of Rigid Metal Conduit where located within the building above slab on grade.
4. Polyvinyl Chloride (PVC): Permitted below grade for site lighting circuitry only.
5. Flexible Metal Conduit (FMC): Required for final connections to motorized equipment, lighting fixtures and equipment subject to vibration.
6. Liquidtight Flexible Metal Conduit (LFMC): Required in lieu of Flexible Metal Conduit in damp or wet locations.

All 600V conductors will be copper material Type THHN/THWN insulation.

All switchboards and panelboards will be furnished with 1000A/in^2 plated copper bus bars.

Overcurrent protection for all switchboards will be provided by either solid state low voltage insulated case circuit breakers or solid state molded case circuit breakers.

Panelboards will be furnished complete with bolt-on circuit breakers and hinged fronts.

Dry-type transformers will be furnished complete with copper windings and electrostatic shield.

All wiring devices will be heavy duty grade. Switches will be rated for 20A, 120/277 VAC. Receptacles will have integral brass strap and be rated for 20A, 120VAC. Plates will be high impact nylon or stainless steel as required.

Seismic Restraint Requirements

Seismic restraints are recommended as part of the electrical design due to the critical nature of the facility. This would impact construction requirements of the electrical equipment, as well as require bracing of all of the electrical installations.

Photovoltaic Array

A photovoltaic solar array (PV) can be incorporated into the electrical design for the building to provide an on-site source of electricity. It is anticipated that the PV array would be provided as a separate "turn key" package, potentially one where the facility leases the space to a third party entity to offset the cost on a lease-to-purchase type of arrangement.

Mechanical Narrative

SCHEMATIC DESIGN NARRATIVE MECHANICAL SYSTEMS

March 2, 2023

SUMMARY

This narrative

1. Describes the existing building mechanical systems, and the proposed changes and additions to those systems at the West Lafayette Police Department building.

2. Provides an analysis of the existing mechanical, plumbing and fire suppression systems and provides recommendations for the renovation of the existing building and integration into a combined facility with the Fire Department.

3. Provides recommendations for the new mechanical, plumbing and fire suppression systems for the proposed Fire Department portion of a combined facility.

CODES AND STANDARDS

The analysis of the existing mechanical, plumbing and fire suppression systems and the recommendations for new, are based on the following Codes and Standards:

1. Applicable Codes:
    a. 2014 Indiana Building Code (IBC)
        i. 2012 International Building Code
        ii. 675 IAC 13-2.6
    b. 2012 Indiana Plumbing Code (IPC)
        i. 2006 International Plumbing Code
        ii. 675 IAC 16-1.4
    c. 2014 Indiana Mechanical Code (IMC)
        i. 2012 International Mechanical Code
        ii. 675 IAC 18-1.6
    d. 2010 Indiana Energy Conservation Code (IECC)
        i. ASHRAE 90.1 2007
        ii. 675 IAC 19.3
    e. 2014 Indiana Fire Code (IFC)
        i. 2012 International Fire Code
        ii. 675 IAC 13-2.6
    f. 2014 Indiana Fuel Gas Code (IFGC)
        i. 2012 International Fuel Gas Code
        ii. 675 IAC 25-3

2. Applicable Standards:
    a. ASHRAE Standard 90.1-2007 Energy Standard for Buildings Except Low-Rise Residential.
    b. ASHRAE Standard 62.1-2010 Ventilation for Acceptable Indoor Air Quality.
    c. ASHRAE Standard 55-2010 Thermal Environmental Conditions for Human Occupancy.
    d. ASHRAE Standard 15-2010 Safety Standard for Refrigeration Systems.
    e. NFPA-13-2010 With Indiana Amendments

Mechanical Narrative

WEST LAFAYETTE POLICE DEPARTMENT EXISTING BUILDING SYSTEMS

The existing building is two stories with a basement and was constructed in 2003. A summary of existing system components is as follows:

1. Air Handling Systems

    a. The building is served by four (4) packaged rooftop units with gas heating and DX cooling.

    b. RTU-1 is a constant volume unit and serves the lab and evidence processing and storage areas in the basement. Duct mounted hydronic reheat coils provide temperature control for individual zones.

    c. RTU-2 is a constant volume unit and serves the remainder of the space in the basement, including the fitness room and locker rooms. Duct mounted hydronic reheat coils provide temperature control for individual zones.

    d. RTU-3 and RTU-4 are variable air volume (VAV) units. RTU-3 serves the first floor and RTU-4 serves the second floor. Interior zones are served by variable air volume air terminal units with hydronic reheat coils. Perimeter zones are served by fan powered VAV air terminal units with hydronic reheat coils.

EXISTING AIR SIDE EQUIPMENT SUMMARY				
Tag	Description	Capacity	Cooling	Heating
RTU-1	CAV Rooftop Unit	3,300 CFM	10 Tons	270 MBH
RTU-2	CAV Rooftop Unit	3,400 CFM	16 Tons	480 MBH
RTU-3	VAV Rooftop Unit	8,850 CFM	30 Tons	540 MBH
RTU-4	VAV Rooftop Unit	9,600 CFM	30 Tons	540 MBH

    e. Exhaust fans serving the lab, fitness area, locker rooms and toilet rooms are located on the roof.

    f. The vehicle sallyport is served by a dedicated exhaust fan; make-up air is provided by a gravity louvered intake. The space is heated by gas fired radiant tube heaters.

2. Hydronic Heating System

    a. The building is served by two (2) 1,000 MBH condensing gas fired boilers arranged in a primary only configuration. Heating hot water is circulated by base mounted centrifugal pumps. Pumps are sized for 100% redundancy.

    b. Hydronic heating is piped to zone reheat coils, convectors, and unit heaters throughout the building.

3. Plumbing Systems

    a. The building has a 4" domestic water service that enters through a reduced pressure backflow preventer.

    b. A duplex water softener softens only hot water in the building.

Mechanical Narrative

c. Hot water is provided via a single gas fired water heater with separate storage tank. The water heater has a capacity of 800 MBH with a 400-gallon tank.

d. Domestic hot water is recirculated from the building.

e. Plumbing fixtures are standard commercial grade. Water closets and urinals are wall hung vitreous china with hard wired automatic flush valves. Lavatories are vitreous china with electronic faucets.

f. A duplex sump pump is located in the lower-level mechanical room.

4. Fire Suppression Systems

a. The building is fully sprinklered. Fire service enters from the north through a double detector check backflow preventer assembly. The building is divided into three separate zones, by floor.

b. There are no dry systems or preaction systems in the building.

c. There are no standpipe systems in this building.

WLPD Building Deficiencies and Opportunities for Improvement

The following items are noted from a facility assessment tour along with conversations and input from the building users and staff.

1. The rooftop units are original to the building. Although functional at the time of our visit, these units exceed the expected useful service life of 15-20 years for this type of outdoor equipment. Significant failures and increased maintenance are likely, and replacement is recommended.

2. The boilers and pumps are original to the building and are within 5-10 years of the expected useful service life. At the time of our visit, boiler B-2A was down for repair.

3. Evidence storage areas in the basement are not currently exhausted. Due to the nature of items stored, we recommend these spaces be exhausted and not recirculated to other areas of the building.

4. Multiple offices and conference rooms are grouped together and supplied from a common air terminal unit or fan powered air terminal unit. Some of these spaces have different occupancy characteristics, and the users would prefer to have individual temperature control.

5. Users report the intensity of radiant tube heaters located in the vehicle sallyport is too high. We recommend a low intensity radiant heater or a higher mounting elevation for these types of applications.

6. Users report poor domestic water quality supplied to the building from the city utility.

7. Users report water pressure issues in the building, occasionally impacting the operation of plumbing fixtures and flush valves.

Proposed Mechanical Systems

Since the existing police department building will be completely reconfigured, and most of the equipment is at or near the end of expected service life, we recommend a complete replacement of the HVAC and plumbing systems. Combining the fire and police departments into one building allows for the installation of central heating hot water, chilled water, and domestic water systems. The benefit of this is increased efficiency, consolidation of equipment requiring service and maintenance, and additional redundancy.

Mechanical Narrative

Mechanical HVAC systems will be designed to provide thermal comfort, ventilation, and exhaust throughout the building in accordance with Code and Owner requirements and applicable standards. Mechanical ventilation and exhaust systems will be separated and zoned to reduce the risk of exposure to contaminants.

Fire department facility indoor air quality and prevention of cross-contamination between various zones is critical. Mechanical systems will be designed with special attention given to maintaining appropriate air pressure relationships. Areas identified for decontamination, or red zones, will be designed with negative air pressure with respect to the surrounding spaces. These areas will be isolated and have a dedicated exhaust system with discharges located away from any building opening or outside air intake. Occupied areas including living areas, break rooms, training rooms, and offices will be designated green zones, and will be designed to have positive air pressure with respect to the surrounding spaces. Transition areas between red zones and green zones will be designated yellow zones and will act as a physical barrier between hazardous red zones and clean green zones.

1. Heating Hot Water System

    a. The boiler plant will consist of three (3) 2,000 MBH high efficiency condensing gas fired boilers arranged in a primary-secondary configuration. Each boiler will have a dedicated constant speed primary pump. Boilers will be sealed combustion with category IV venting through the roof.

    b. The boiler plant will be sized with one redundant boiler to maintain design capacity in the event of one boiler failure.

    c. Heating hot water will be circulated through the building by two (2) base mounted centrifugal pumps. Secondary pumps will have variable frequency drives (VFD) and will be variable speed for energy efficiency.

    d. Heating water will be piped to air handling unit coils, reheat coils, perimeter radiation, cabinet heaters and unit heaters.

    e. Heating water supply temperature will be reset based on outside air conditions to maximize energy efficiency of the condensing boilers.

2. Chilled Water System

    a. The chiller plant will consist of a 200-ton outdoor air cooled chiller in a variable primary flow configuration.

    b. The chiller will be located on a concrete foundation. Consideration will be given to providing proper clearances for efficient operation, service and maintenance. A sound enclosure may be incorporated to reduce the noise impact on building occupants and surrounding properties.

    c. The chilled water fluid will be a 30% propylene glycol solution for freeze protection.

    d. Chilled water will be circulated through the building by two (2) base mounted centrifugal pumps. Chilled water pumps will be variable speed for energy efficiency.

Mechanical Narrative

3. Air Side Systems

    a. Two (2) modular indoor central station air handling units will serve the building. AHU-1 will serve the west side of the building including the police department and central shared lobby and training spaces. AHU-2 will serve the east side of the building including the fire department, excluding the apparatus bays. Both units will be Variable Air Volume (VAV) air handling units consisting of a return fan, economizer and mixing section, high efficiency MERV 13 cartridge filters with MERV 8 prefilters, plenum supply fan, hot water heating coil, and chilled water cooling coil. The supply fan and return fan will each be controlled via a variable frequency drive.

    b. The fire department apparatus bay will be served by a gas fired make-up air unit, MUA-1, suspended within the space. The make-up air unit will provide tempered outside air for general ventilation and exhaust air make-up.

AIR HANDLING UNIT SUMMARY			
Equipment Tag	Description	Capacity	Electrical
AHU-1	VAV Air Handler	35,000 CFM	50 HP
AHU-2	VAV Air Handler	18,000 CFM	30 HP
MUA-1	MAKE-UP AIR UNIT	5,000 CFM	5 HP

4. Miscellaneous Heating and Cooling Systems

    a. Hydronic perimeter finned tube radiation or radiant ceiling panels will be provided where appropriate for thermal comfort in offices and conference rooms.

    b. Hydronic unit heaters and cabinet heaters will be provided in mechanical rooms, entrance vestibules and other ancillary spaces requiring heating.

    c. Hydronic fan coil units will be provided in stairs and ancillary spaces requiring heating and cooling.

    d. Low-intensity gas fired radiant tube heaters will be provided in vehicular sallyports and in the fire department apparatus bay. Heaters will be directly vented to the outdoors and arranged to provide even heating within the space.

    e. Electrical equipment rooms and data server and equipment rooms will be served by ductless split air conditioning units. Units will be sized to handle the addition of future equipment and load where appropriate. Due to its critical nature, the MDF will be provided with redundant air conditioning units to ensure functionality if cooling equipment fails. Outdoor units will be located on the roof or adjacent grade.

5. Specialized Exhaust and Ventilation Systems

    a. Police department evidence storage areas will have dedicated constant volume exhaust and will maintain a negative air pressure within the space. Air will not be recirculated to other areas of the building.

    b. Police department vehicle sallyports will have a dedicated exhaust fan and outside air intake louver for general ventilation. No mechanical vehicle exhaust extraction system is anticipated.

c. General exhaust will be provided in the police station assessment, processing and holding areas.

d. Fire department decontamination area will have a dedicated constant volume exhaust balanced to maintain a negative air pressure within the space. Air will not be recirculated to other areas of the building.

e. Fire department apparatus bays will include a direct capture exhaust system to eliminate exposure to carbon monoxide fumes from vehicle exhaust.

6. Piping Systems

a. Above ground hydronic piping will consist of chilled water supply and return (CHWS/R) and heating hot water supply and return (HHWS/R).

b. Hydronic piping will be Type L, hard drawn seamless copper with threaded and coupled or soldered joints or Schedule 40 black steel with threaded, welded, flanged or grooved end mechanically coupled joints.

c. Condensate piping will be Type L, hard drawn seamless copper with DWV fittings. Joints shall be soldered.

d. Refrigerant piping shall be Type L, hard drawn seamless copper with ACR fittings. Joints shall be soldered.

e. All piping shall be externally insulated with heavy density fiberglass pipe insulation with ASJ jacketing or elastomeric closed cell insulation. All exterior above grade pipes will have an aluminum jacket over the insulation.

7. Air Distribution and Ductwork Systems

a. Supply, return, exhaust, and transfer air ductwork will consist of low pressure and medium pressure galvanized steel. Medium pressure ductwork between air handling units and air terminal units will be constructed to 4" pressure class. Low pressure ductwork downstream of air terminal units will be 2" pressure class. Ductwork will be constructed in accordance with SMACNA Standards and sealed to meet SMACNA Seal Class A as a minimum.

b. Single duct Variable Air Volume (VAV) terminal units will provide zoned temperature control. VAV boxes will be designed to serve approximately 1,000 square feet per box. Areas with similar function, occupancy and exterior exposure will be grouped together. Select individual offices will have dedicated VAV terminal units where individual temperature control is desired.

c. Supply and return air ductwork will be externally insulated with fiberglass insulation or internally lined for sound attenuation and energy efficiency. Concealed ducts will have flexible insulation with ASJ jacket. Exposed ductwork in occupied spaces will be double wall spiral with perforated inner duct.

d. Air terminals will be selected to be complementary with interior design elements and ceiling types. Standard air terminals will be steel. Air terminals serving wet areas or areas subject to condensation will be aluminum. Supply diffusers located near kitchen or laboratory fume hoods will be low velocity type and located to avoid disrupting the hood performance.

e. Type I kitchen hood exhaust ductwork will be 16-gauge steel, fully welded. Kitchen hood exhaust ductwork will be externally wrapped with fire-wrap insulation where required and sloped back to the hoods. Access doors for cleaning will be provided in accordance with NFPA requirements. Exhaust fans will be roof or wall mounted, upblast centrifugal type with construction suitable for grease exhaust.

f. Type II kitchen hood exhaust ductwork will be welded stainless steel. Exhaust fans will be roof or wall mounted, upblast centrifugal type with construction suitable for dishwasher exhaust.

g. Fire dampers will be provided in ductwork penetrating rated construction assemblies.

8. Temperature Control System

   a. A direct digital control (DDC) temperature control system will be provided. Controllers for air handling units, air terminal units, split systems, and smaller equipment will be networked together to the building management system. A graphical user interface will be provided.

   b. CO2 sensors will be provided in high density occupancy areas for demand ventilation and/or monitoring purposes.

   c. CO monitoring will be provided in the fire department apparatus bay and police department vehicular sally ports.

9. Parking Garage

   a. The parking garage will not be enclosed, mechanical ventilation is not required and is not anticipated.

Proposed Plumbing Systems

The plumbing system will be completely new and include domestic hot and cold water, sanitary waste, vent, storm drain, compressed air and natural gas piping systems based on the proposed building.

1. Plumbing Fixtures

   a. Plumbing fixtures will be commercial grade and consist of vitreous china water closets, urinals and lavatories, stainless steel or solid surface sinks, chrome plated brass faucets and automatic flush valves, stainless steel electric water coolers and bottle fillers.

   b. Plumbing fixtures will be accessible where required to meet the requirements of the Americans with Disability Act (ADA).

2. Domestic Water Systems

   a. A domestic water main will enter the building in the mechanical room. Duplex reduced pressure backflow preventers will be installed in the water service room.

   b. The water main will run through an automatic water filtration system and packaged domestic water booster system with duplex variable speed pumps.

   c. Hot water only will be softened by a duplex alternating twin water softener.

   d. Domestic hot water will be heated by duplex natural gas fired tank type water heaters located in the mechanical room. Water heaters will be high efficiency condensing with 300 MBH input and 100-gallon storage capacity. Domestic hot water will be stored at 140 °F to mitigate water borne pathogens.

e. A building master thermostatic mixing valve will provide 110 °F for restrooms, showers and general building hot water. Water at 140 °F will be provided for kitchen use.

f. Water will be distributed throughout the building to restroom groups, lavatories, hand-wash sinks, janitor sinks, and kitchen equipment.

g. Hot water will be recirculated throughout the building to ensure hot water is available at the furthest fixture.

h. Domestic water piping will be Type L hard drawn copper pipe with soldered, brazed, or grooved joints and fittings or Schedule 40 galvanized steel pipe with threaded or grooved joints and fittings.

3. Sanitary and Storm Drain Systems

a. Sanitary waste and vent mains will be provided for the building and connect to plumbing fixtures, equipment, and floor drains.

b. Sanitary waste from the kitchen will run through a grease interceptor. The polyethylene hydromechanical type grease interceptor will be located below grade outside the building footprint near the kitchen.

c. Sanitary waste from the vehicle sally port and apparatus bay will run through a sand and oil separator. The polyethylene sand and oil separator will be located below grade outside the building footprint near the areas served.

d. Plumbing vents will exit the building through the roof.

e. Storm drains will be piped from roof drains through the building above ceiling and out the building at multiple locations to the storm sewer via gravity. Roof drains and overflow roof drains will be piped together as permitted by the Indiana Plumbing Code (IPC).

f. Sanitary waste and vent and storm piping will be service weight cast iron with hub and spigot or hubless joints and fittings.

4. Compressed Air system

a. A general building compressed air system will be provided and consist of a duplex reciprocating or rotary screw air compressor, refrigerated air dryer, compressed air filters and regulators.

b. Compressed air will be piped to outlets throughout the fire department apparatus bay and vehicle sally ports to be used for vehicle service and maintenance, pneumatic powered tools and other general building uses.

c. Compressed air piping will be Type L hard drawn copper pipe with soldered or brazed joints and fittings or Schedule 40 galvanized steel pipe with threaded joints and fittings.

5. Firefighter Breathing Air Fill Station

a. A packaged firefighter breathing air fill station will be provided with a high-pressure breathing air compressor system, storage tank(s), fill station and integral controls.

b. Intake for firefighter breathing air will be piped directly from the outdoors.

Mechanical Narrative

6. Natural Gas Systems

    a. A natural gas main will be piped into the building to boilers, water heaters, gas fired heating equipment and kitchen equipment.

    b. Gas piping will be Schedule 40 black steel with threaded or welded joints and fittings. Piping located in concealed locations will be fully welded.

Proposed Fire Suppression Systems

1. The existing fire service to the building will be re-used. Due to the extent of renovation in the police department, it is anticipated the entire existing fire suppression system will be replaced. The fire suppression system will consist of sprinkler pipe, zone valves and mains. Branch piping and sprinkler heads will be installed and spaced to provide proper coverage in accordance with NFPA 13.

2. Standpipe systems will not be required.

3. An FM200 clean agent system or double interlocked preaction system will be provided in critical areas such as the main data room and locations containing security or essential electronics.

4. The parking garage will not be enclosed, and fire suppression is not required.

5. Wet pipe fire suppression piping will be Schedule 10 and Schedule 40 black steel pipe with threaded, grooved or welded joints and fittings. Piping for dry systems and piping upstream of the building backflow preventer will be galvanized steel. Sprinkler heads will be standard temperature semi-recessed pendant or upright to suite application and ceiling condition. Sprinkler heads located in high temperature environments will be intermediate or high temperature type. Dry type heads will be provided at exterior canopies and overhangs if required.

Technology Responsibility Matrix

System Name	Power, Boxes and Conduit		Cabling & Wiring		Equipment		Set-Up / Configure	
	Furnish	Install	Furnish	Install	Furnish	Install	Furnish	Install
Outside Fiber Connectivity	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor	City Vendor	City Vendor
Data Network Cabling, Jacks, Patch Panels and Racks	Const	Const	Const	Const	Const	Const	N/A	N/A
Data Network Servers, Switches, Routers and Fire Wall	N/A	N/A	N/A	N/A	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor
VoIP Telephone System	N/A	N/A	N/A	N/A	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor
Workstation Computers	N/A	N/A	N/A	N/A	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor
Data Network Rack Mounted UPS's	N/A	N/A	N/A	N/A	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor	City IT / City Vendor
Building Public Safety Radio Repeater	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Police Radio Base Station	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Fire Radio Base Station	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Access Control System	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Security Camera System	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Entry Intercom System	Const	Const	Const	Const	Const	Const	Const	Const
Duress Alarm	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Emergency Response Command Equipment	Const	Const	Const	Const	City IT	City IT	City IT	City IT
Audio-Visual Systems	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor	City Vendor	City Vendor
Building Paging System	Const	Const	Const	Const	Const	Const	Const	Const
Public Message Boards	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Fire First Arriving Message Boards	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Fire Dispatch Alerting System	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Police Dispatch Message Boards	Const	Const	Const	Const	City Vendor	City Vendor	City Vendor	City Vendor
Building Fire Alarm	Const	Const	Const	Const	Const	Const	Const	Const
Shielded Cell Phone Evidence Storage	Const	Const	Const	Const	Const	Const	Const	Const

PROJECT COST ESTIMATE

Project Cost Estimate Summary

CSQ Associates

City of West Lafayette Indiana
Public Safety Campus Feasibility Study
Conceptual Program Cost Opinion

3/15/2023

PROGRAM COSTS		Cost	
Project Hard Cost Total		$34,648,903	
Hard Cost Pricing and Design Contingency	7%	$2,425,423	
		$37,074,327	
Hard Cost Escalation to Bid Time (Based on rate of 6 % per year, .5% per month)	4.5%	$1,668,345	
Total Hard Cost Opinion		$38,742,671	
Soft Cost Opinion		$6,780,526	17.5%
Total Program Cost Opinion		$45,523,198	

ITEMS INCLUDED IN SOFT COSTS
Professional Design Fees: Architectural and Engineering
Owners Representative
Geotechnical Testing
Builders Risk Insurance
Bond Issuance Costs
QA/QC Testing
Interior Signage/Wayfinding/Branding
Art and Miscellenaous Furnishings
Furniture
Appliances
Moving Costs
Contingency
Document Reproduction
Final Deep Cleaning
Telephone Systems
New Data Equipment and Tech time

ITEMS NOT INCLUDED IN SOFT COSTS
Legal Fees
Allowances for Capitalized interest
Permitting Costs (To be Waived)
Renewable Energy Systems
Simulation Training Equipment
Workstation Computers and Servers
VoIP Telephones and System
Traffic Signalization (if Required)
Radio Systems or Towers

***This Cost Estimate represents our opinion of probable construction cost for the project. We have exercised due professional diligence in the preparation of this estimate. Since we have no control over bidding and market conditions, no guarantee is given or implied with this estimate.**

Project Cost Estimate Summary

City of West Lafayette Indiana
Public Safety Campus Feasibility Study
Conceptual "Soft Cost" Opinion

Estimate Prepared By: CSQ Associates
Contact: Bill Gorski
email: bill@csqassociates.com

SOFT COST BUDGET ANALYSIS
Dated: 3-15-23

PROJECT SCOPE:

					Project sf	102,433
DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF
PROFESSIONAL FEES					3,112,171	$30.38
EXPLORITORY WORK					10,000	$0.10
SURVEYING					3,500	$0.03
BUILDERS RISK INSURANCE					193,713	$1.89
FINANCING -BOND ISSUANCE COSTS- (No Capitalized interest Assumed)					368,055	$3.59
LEGAL	NONE ASSUMED				-	$0.00
PERMITTING					3,500	$0.03
HAZARDOUS MATERIAL ABATEMENT	NONE ASSUMED				-	$0.00
UTILITIES					-	$0.00
QUALITY ASSURANCE TESTING					25,000	$0.24
INTERIOR SIGNAGE/BRANDING					50,000	$0.49
ART AND MISC FURNISHINGS					50,000	$0.49
FURNITURE FIXTURES AND EQUIPMENT ALLOWANCE					622,775	$6.08
APPLIANCE ALLOWANCE					23,650	$0.23
OFFICE EQUIPMENT AND ACCESSORIES	NONE ASSUMED				-	$0.00
MOVING COSTS					75,000	$0.73
CONTINGENCY					1,937,134	$18.91
WINTER CONDITION ALLOWANCE	INCLUDED IN HARD COSTS				-	$0.00
DOCUMENT REPRODUCTION					15,000	$0.15
FINAL CLEANING					16,028	$0.16
ACCESS CONTROL	INCLUDED IN HARD COSTS				-	$0.00
CCTV SYSTEMS	INCLUDED IN HARD COSTS				-	$0.00
PAGING SYSTEMS	INCLUDED IN HARD COSTS				-	$0.00
TELEPHONE SYSTEMS					75,000	$0.73
SERVERS AND DATA					200,000	$1.95
TOTAL SOFT COSTS				6,780,526	6,780,526	$66.19
				38,000,000	17.84%	

Project Cost Estimate Summary

CSQ Associates

City of West Lafayette Indiana
Public Safety Campus Feasibility Study
Conceptual "Hard Cost" Opinion

3/14/2023

	SF	Cost	Cost/SF
SITEWORK COSTS			
General Sitework	102,433	$2,876,634	$28
BUILDING COSTS			
New Construction	46,629	$22,217,846	$476
Renovations including Existing Building Envelope Improvements	24,804	$4,898,150	$197
	71,433		
Parking Structure	31,000	$4,656,274	$150
Project Hard Cost Total	102,433	$34,648,903	$ 338
Pricing and Design Contingency	7%	$2,425,423	$ 24
		$37,074,327	$362
Cost Escalation to Bid Time (Based on rate of 6 % per year, .5% per month)	4.5%	$1,668,345	$ 16
Total Hard Cost Opinion		$38,742,671	$378

ALTERNATIVE CONSIDERATIONS		
Eliminate Roof at Parking Structure	DEDUCT	-$1,200,000
Install Green Roof (Sedum Plantings) at New Additions	ADD	$1,000,000
Window Replacement at Existing	ADD	$116,000

SCOPE OF WORK
Please see the attached detail and concept design drawings for further clarification.

General
Cost opinion is based on 22 month schedule which is contingent on Final Phasing and Staging Approach

Sitework Specific
Removal and Replacement of all Existing Hard Surfacing on site
Curb Replacement at Navajo and Edwards
9" Concrete Pavement for Apparatus Bay Access. Balance of Parking and Drives to be light duty asphalt pavement.
Storm Underground detention allowance of $273,000. Based on replacing existing and creating new.
Removal and Relocation of the Existing South Sanitary line. $58,000. (requires further research and detailed field survey
Landscaping Allowance of $198,000 including rain gardens and Modular Retaining wall at southeast side
$40,000 Allowance for Dumpster Enclosure
$40,000 Allowance for Generator Enclosure
$50,000 Monumental Sign Allowance-Non Electronic
Fencing at South and East Property Lines Allowance of $54,000
$50,000 Allowance for Parking Control Equipment
$165,000 Allowance for Site Lighting

Building Specific
Based on soils suitable for open cut excavation and does not include allowances for any Earth Retention measures
We have assumed in-situ soils are suitable for structural Backfill
Winter Conditions/Temporary Heating Allowance of $95,000
Costs include Razing the Existing East Single Story Addition
Steel Framed System, Bar joists
Perimeter Walls Two Story- Based on CMU including Apparatus Wing

Envelope
Exterior wall finish allowance- Please refer to attached detail.
$180,000 Allowance for Main Entry Canopy Element
$80,000 Allowance for Light Gauge Framed Façade features
$48,000 Allowance for HVAC Unit Screening
$200,000 Allowance for Apparatus Bay Overhead Doors

Interiors
Interior Partitions- Painted CMU Walls at Security Areas, Apparatus wing.
Balance of interior Partitions assumed to be Full height Painted Standard Drywall Partitions
Floors- Multiple Surfaces; Refer to attached graphic for the systems assumed
Ceilings- Acoustic Ceilings,
Accent Wall Allowance of $38,000

Project Cost Estimate Summary

Equipment Allowances
Police Department lockers (80)- Allowance of $60,000
Turn out Gear lockers (36)- Allowance of $43,000
Slide Pole-$20,000
Kitchen Equipment-$30,000
Laundry Eqpt Allowance $40,000
Fitness equipment allowance-$50,000
Misc Detention Equipment Allowance-$232,000
Emergency Power(Generators, Transfer Switches, Fuel Storage Tanks) Allowance $950,000

Mechanical, Electrical, Plumbing -Please refer to attached detail for assumptions

Renovation Specific
Existing Interiors to be essentially "gutted" salvaging existing partitions where possible
An Allowance of (4) New Window openings in Existing Precast Walls. Value $40,000
Full Roof Removal and Replacement
Cladding All Existing Precast Panels- Materials TBD- $60/sf Allowance
The opinion assuming leaving existing windows in place. If desired, the windows can be replaced for $116,000.
Door Access Control Hardware Allowance of $76,000
Accent Wall Allowance of $15,000
A $30,000 allowance for Elevator Cab Refurbishment has been included
Reworking Existing Fire Sprinkler Heads
New HVAC Equipment and Limited ductwork replacement
Magnagrip System-FD Exhaust System
New Electrical Distribution, Lighting and Fire Alarm

Low Voltage Systems
Teledata System Cabling
Audio Visual
Access Control System Devices, Cabling and Equipment (Card Readers)
CCTV
Intercom System
Paging Systems-PD Side
Locution System
Fire Alarm

Parking Garage Specific
Lower Level- Sloped Parking to Basement Elevation
Level 1- Cast in Place Post tensioned Slab
Low Slope Roof System, Structural Bar joist Structure
Façade- Spandrel, Roof Fascia and Mesh Material Allowance of $604,000
Soffit- Metal Liner Panels
Lighting
No Fire Sprinklers Assumed

ITEMS NOT ASSUMED IN THE COST OPINION
Future Pricing or Escalation Contingencies
Underslab waterproofing or drainage systems (other than vapor Barrier)
Renewable Energy Systems
Fume hood for Lab
Dry Type Fire Suppression System- FM200 System or otherwise for data rooms
Seismic Provisions
Fire Pump
Impact Resistant Drywall or Specialty wall protection
Hardening of Entrances or exterior Openings
Accelerated Work Schedule including Overtime or Premium Time
Unsuitable Soil Remediation Allowances
Hazardous Material Identification or Abatement

SOFT COSTS-NOT INCLUDED ABOVE
Simulation Training Equipment
Workstation Computers and Servers
VoIP Telephones and System
Traffic Signalization (if Required)
Radio Systems or Towers
Computer, Data and Systems Head End Equipment
Furniture or Furnishings
Design Fees
Owner or Unforeseen Condition Contingency

***This Cost Estimate represents our opinion of probable construction cost for the project. We have exercised due professional diligence in the preparation of this estimate. Since we have no control over bidding and market conditions, no guarantee is given or implied with this estimate.**

****This estimate is based on information available at this time. The scope of this estimate should be reviewed to ensure our interpretation of the drawings and other information is correct. This estimate will be updated as the design evolves and is completed**

Project Cost Estimate Summary

City of West Lafayette Indiana
Public Safety Campus Feasibility Study
Concept Stage "Hard Cost" Opinion

CSQ Associates

Architect: Shive Hattery

Estimate Prepared By: CSQ Associates, Bill Gorski, Bill@csqassociates.com

Conceptual Estimate
Dated: 3-14-23

PROJECT SCOPE:

New Construction

Lower Level	13061	sf
1st Floor	20508	sf
2nd Floor	13060	sf
Total	46629	sf

Renovations

Lower Level	7134	sf
1st Floor	8797	sf
2nd Floor	8873	sf
Total	24804	sf

					Project sf		71,433	46,629	24,804	
DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST	New Construction	Renovations	Sitework
QA/QC TESTING					30,000	$0.42	0.10%	15,000	5,000	10,000
GENERAL CONDITIONS					1,195,637	$16.74	3.99%	688,535	276,358	230,745
PREMIUM TIME ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%	0		
WINTER CONDITION ALLOWANCE					95,000	$1.33	0.32%	90,000	0	5,000
SELECTIVE DEMOLITION					461,300	$6.46	1.54%	111,430	349,870	0
SITE DEMOLITION					256,819	$3.60	0.86%	0	0	256,819
SITE EXCAVATION					302,547	$4.24	1.01%	0	0	302,547
STRUCTURAL EXCAVATION					729,679	$10.21	2.43%	729,679	0	0
UNSUITABLE SOIL ALLOWANCE	NONE ASSUMED							0		
SITE UTILITY ALLOWANCE					470,840	$6.59	1.57%	0	0	470,840
UNDERGROUND STORM DETENTION ALLOWANCE					272,800	$3.82	0.91%	0	0	272,800
SITE PAVEMENTS					506,713	$7.09	1.69%	0	0	506,713
LANDSCAPING -SEEDING-SODDING- RETAINING WALLS ALLOWANCE					198,690	$2.78	0.66%	0	0	198,690
SITE APPURTENANCES					294,650	$4.12	0.98%	0	0	294,650
CONCRETE					1,336,531	$18.71	4.46%	1,336,531	0	0
MASONRY					363,340	$5.09	1.21%	298,940	64,400	0
STRUCTURAL AND MISCELLANEOUS STEEL					3,182,786	$44.56	10.61%	3,157,786	25,000	0
FAÇADE FEATURE FRAMING-ALLOWANCE					80,000	$1.12	0.27%	50,000	30,000	0
ROUGH CARPENTRY					61,728	$0.86	0.21%	46,092	15,636	0
MILLWORK AND FINISH CARPENTRY					220,950	$3.09	0.74%	172,645	48,305	0
WATERPROOFING					74,928	$1.05	0.25%	69,928	5,000	0
INSULATION					42,072	$0.59	0.14%	37,072	5,000	0
ROOFING & SHEET METAL					1,300,674	$18.21	4.34%	966,650	334,024	0
CANOPY ALLOWANCE					240,000	$3.36	0.80%	240,000	0	0
EXTERIOR ENVELOPE					1,964,369	$27.50	6.55%	1,637,134	327,235	0
JOINT SEALANTS					79,334	$1.11	0.26%	55,889	23,445	0
OVERHEAD DOORS					251,000	$3.51	0.84%	246,000	5,000	0
DOORS, FRAMES AND HARDWARE					339,200	$4.75	1.13%	246,200	93,000	0
GLASS & GLAZING					274,834	$3.85	0.92%	249,334	25,500	0
GYPSUM DRYWALL					590,460	$8.27	1.97%	458,697	131,763	0
FLOORING AND TILE ALLOWANCE					813,144	$11.38	2.71%	595,945	217,199	0
CEILINGS					346,366	$4.85	1.15%	270,300	76,066	0
PAINTING					364,156	$5.10	1.21%	246,819	117,337	0
INTERIOR WALL ACCENT ALLOWANCE					52,500	$0.73	0.18%	37,500	15,000	0
SPECIALTIES					500,180	$7.00	1.67%	374,000	126,180	0
WINDOW TREATMENTS					52,875	$0.74	0.18%	37,500	15,375	0
DETENTION EQUIPMENT					232,320	$3.25	0.77%	124,715	107,605	0
MANUFACTURED CASEWORK-SPECIALTY PROGRAM EQUIPMENT					255,000	$3.57	0.85%	175,000	80,000	0
ELEVATORS					30,000	$0.42	0.10%	0	30,000	0
EQUIPMENT					160,000	$2.24	0.53%	160,000	0	0
FIRE PROTECTION ALLOWANCE					282,682	$3.96	0.94%	215,543	67,139	0
PLUMBING ALLOWANCE					1,171,986	$16.41	3.91%	890,171	281,815	0
HVAC					3,888,095	$54.43	12.96%	3,188,880	699,215	0
ELECTRICAL ALLOWANCE					3,554,528	$49.76	11.85%	2,736,248	653,280	165,000
LOW VOLTAGE ALLOWANCE					1,374,221	$19.24	4.58%	1,004,072	370,149	0
SUBTOTAL				28,294,933	28,294,933	$396.10	94.34%	20,960,232	4,620,896	2,713,805
PRICING/DESGIN CONTINGENCY					SEE SUMMARY					
SUBTOTAL					28,294,933	$396.10	94.34%	20,960,232	4,620,896	2,713,805
GC Mark up and insurances				6.00%	1,697,696	$23.77	5.66%	1,257,614	277,254	162,828
Total Hard Cost Budget					$29,992,629	$419.87	100.00%	22,217,846	4,898,150	2,876,634

PARKING STRUCTURE

Parking Deck

1st Floor	15500	sf
Lower Level	15500	sf
Total	31000	sf

					Project sf		31,000
DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
QA/QC TESTING					5,000	$0.16	0.11%
GENERAL CONDITIONS					140,317	$4.53	3.01%
PREMIUM TIME ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
WINTER CONDITION ALLOWANCE					5,000	$0.16	0.11%
STRUCTURAL EXCAVATION					238,548	$7.70	5.12%
UNSUITABLE SOIL ALLOWANCE	NONE ASSUMED						
SITE UTILITY ALLOWANCE					53,200	$1.72	1.14%
CONCRETE					1,980,570	$63.89	42.54%
MASONRY	SEE FAÇADE				-	$0.00	0.00%
STRUCTURAL AND MISCELLANEOUS STEEL					397,500	$12.82	8.54%
WATERPROOFING					25,728	$0.83	0.55%
INSULATION					-	$0.00	0.00%
ROOFING & SHEET METAL					358,700	$11.57	7.70%
EXTERIOR CLADDING					604,505	$19.50	12.98%
CEILINGS					67,361	$2.17	1.45%
COATINGS					108,500	$3.50	2.33%
SPECIALTIES					22,000	$0.71	0.47%
FIRE PROTECTION ALLOWANCE	NONE ASSUMED					$0.00	0.00%
PLUMBING ALLOWANCE					111,290	$3.59	2.39%
ELECTRICAL ALLOWANCE					231,000	$7.45	4.96%
LOW VOLTAGE ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
SUBTOTAL				4,349,219	4,349,219	$140.30	93.41%
PRICING CONTINGENCY				1.00%	43,492	$1.40	0.93%
SUBTOTAL					4,392,712	$141.70	94.34%
GC Mark up and insurances				6.00%	263,563	$8.50	5.66%
						$0.00	0
Total Hard Cost Budget					$4,656,274	$150.20	100.00%

Project Cost Estimate Details

City of West Lafayette Indiana
Public Safety Campus Feasibility Study
Concept Stage "Hard Cost" Opinion

CSQ Associates

Architect: Shive Hattery

Estimate Prepared By: CSQ Associates, Bill Gorski, Bill@csqassociates.com

Conceptual Estimate
Dated: 3-14-23

PROJECT SCOPE:

New Construction

Lower Level	13061	sf
1st Floor	20508	sf
2nd Floor	13060	sf
Total	46629	sf

Renovations

Lower Level	7134	sf
1st Floor	8797	sf
2nd Floor	8873	sf
Total	24804	sf

Project sf 71,433

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
01400	QA/QC TESTING					30,000	$0.42	0.10%
	New Work Testing	1	al	15000.00	15,000			
	Renovation Testing	1	al	5000.00	5,000			
	Sitework Testing	1	al	10000.00	10,000			
					-			
01400	GENERAL CONDITIONS					1,195,637	$16.74	3.99%
	New Construction							
	SITE SUPERVISION	10	mo	45898.00	458,980			
	Permits	1	al	100000.00	100,000			
	Barricades	1	al	5000.00	5,000			
	Temporary Fencing	1,783	lf	8.00	14,264			
	Temporary Gates	8	ea	1500.00	12,000			
	Safety PPE etc	10	mo	150.00	1,500			
	misc safety items	1	al	2500.00	2,500			
	Safety and Notification Signage	1	al	500.00	500			
	Install and maintain Signage	1	ea	250.00	250			
	Project Sign	1	ea	1250.00	1,250			
	Traffic Control	1	ea	2500.00	2,500			
	Temporary Stair Tower- Interim Emergency egress ONLY	1	ea	50000.00	50,000			
	Protect surfaces	43,454	sf	0.75	32,591			
	Weather Enclosures	1,800	SF	4.00	7,200			
	Renovation							
	SITE SUPERVISION	4	mo	45898.00	183,592			
	Protect surfaces	20,658	sf	0.75	15,494			
	Mobilization	1	al	35000.00	35,000			
	Field Office includes supplies, Technology Equipt etc	4	mo	1750.00	7,000			
	Storage Trailers	4	mo	125.00	500			
	Temporary Phone/Fax and Data service	4	mo	550.00	2,200			
	Temporary Toilets for the project	4	mo	400.00	1,600			
	Daily and Weekly Cleaning (4mh per Week)	17	wks	348.00	6,027			
	Final construction cleaning including glass and floors	20,658	sf	0.22	4,545			
	Dumpsters	20	Ea	750.00	15,000			
	Concrete Wash out area	1	ea	1800.00	1,800			
	Construction Surveying	16	chrs	225.00	3,600			
	Sitework							
	SITE SUPERVISION	4	mo	45898.00	183,592			
	Protect surfaces in new space	1,526	sf	1.00	1,526			
	Mobilization	1	al	1500.00	1,500			
	Field Office includes supplies, Technology Equipt etc	4	mo	1750.00	7,000			
	Storage Trailers	4	mo	125.00	500			
	Temporary Phone/Fax and Data service	4	mo	550.00	2,200			
	Temporary Toilets for the project	4	mo	200.00	800			
	Daily and Weekly Cleaning (4mh per Week)	17	wks	348.00	6,027			
	Final construction cleaning	80	mh	85.00	6,800			
	Dumpsters	5	Ea	750.00	3,750			
	Street Cleaning (2hrs every other week)	40	hrs	100.00	4,000			
	Concrete Wash out area	1	ea	1800.00	1,800			
	Construction Surveying	50	chrs	225.00	11,250			
					-			
01700	PREMIUM TIME ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
01700	WINTER CONDITION ALLOWANCE					95,000	$1.33	0.32%
					-			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	New Construction							
	Winter Condition Allowance	1	al	90000.00	90,000			
	Sitework							
	Winter Condition Allowance	1	al	5000.00	5,000			
					-			
02400	SELECTIVE DEMOLITION					461,300	$6.46	1.54%
					-			
	New Construction							
					-			
	Raze Existing EAST	26,586	cf	0.75	19,940			
	Building Materials Volume	325	cy					
	Building Materials Dispose	325	Tons	81.00	26,320			
					-			
	Raze Existing WEST	51,800	cf	0.75	38,850			
	Building Materials Volume	325	cy					
	Building Materials Dispose	325	Tons	81.00	26,320			
	Renovation							
	interior demo	20,658	sf	15.00	309,870			
	Existing Wall Penetrations	4	ea	10000.00	40,000			
					-			
02300	SITE DEMOLITION					256,819	$3.60	0.86%
					-			
	Sitework							
	Demo existing walks-On-Site	4,142	sf	2.00	8,284			
	Demo existing walks-Public Walk	5,908	sf	2.00	11,816			
	Demo curbs	2,445	lf	10.00	24,450			
	Demo ACP	34,742	sf	2.75	95,541			
	Demo Existing Light Standards	8	ea	2200.00	17,600			
	Demo Bollards	10	ea	150.00	1,500			
	Demo Concrete Pavement	8,797	sf	3.50	30,790			
	Demo Misc Site Pads	1	al	5000.00	5,000			
	Demo Flagpoles	3	ea	1500.00	4,500			
	Demo Fencing	90	lf	35.00	3,150			
	Demo Parking Curb Chocks	105	ea	85.00	8,925			
	Demo Storm Siren	1	ea	3500.00	3,500			
					-			
	Demo Existing Storm Piping	500	lf	15.00	7,500			
	Demo Existing Storm Structures	10	ea	2000.00	20,000			
	ROW Saw cutting	1,158	lf	8.00	9,264			
					-			
	Shed Removal	1	ea	5000.00	5,000			
02300	SITE EXCAVATION					302,547	$4.24	1.01%
					-			
	Sitework							
	DEWATERING ALLOWANCE	1	AL	2500.00	2,500			
	Erosion Control-Perimeter Protection	1,783	lf	4.00	7,132			
	Construction entrances	449	SY	40.00	17,960			
	Erosion Control-Structures	32	ea	250.00	8,000			
	Erosion Control- Blankets	2,649	SY	2.00	5,298			
	Temporary Seeding	2,649	SY	2.00	5,298			
					-			
	Lower East Lot 2ft,	2,314	cy	10.00	23,140			
	Strip Site Topsoil 6"	714	cy	10.00	7,140			
	Site Balance Allowance	1,000	cy	10.00	10,000			
	Excavate For Pavements	3,180	cy	8.00	25,443			
	Excavate For Walkways	332	cy	15.00	4,973			
	Excavate For Curbs	381	cy	15.00	5,722			
	Fine Grade for Pavements	6,437	SY	4.50	28,969			
	Back-up Curbs and Walks	4,017	lf	8.00	32,136			
	Finish Grading	2,649	SY	4.00	10,596			
	Replace Topsoil using existing	442	CY	25.00	11,050			
	Haul Off	6,479	CY	15.00	97,191			
02300	STRUCTURAL EXCAVATION					729,679	$10.21	2.43%
					-			
	General							
	Temporary Site Access Roadway Allowance, Left in place and Topped with Topsoi	2,500	SY	22.00	55,000			
	Storage Laydown	500	SY	22.00	11,000			
	Maintain Access Roadways	120	hrs	95.00	11,400			
	New Construction							
	DEWATERING ALLOWANCE	1	AL	5000.00	5,000			
		1,983	backfill existing					
		8,279	volume of basement					
	Mass Excavate Basement	10,262	cy	7.00	71,834			
	Mass Excavate Basement-Safety Slopes	2,305	cy	7.00	16,135			
	Backfill Safety slopes and workspace- Existing	4,288	cy	25.00	107,200			
	Backfill -Basement Wick-Stone	2,500	cy	75.00	187,500			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Stone for Slab on Grade 6"	275	cy	75.00	20,643			
	Haul off	11,054	cy	15.00	165,814			
	Footing Drains	583	lf	30.00	17,490			
	East Single Story							
	Excavate Building Footprint	426	cy	10.00	4,261			
	Excavate Footings	529	cy	10.00	5,289			
	Backfill Footings	476	cy	40.00	19,040			
	Excavate For Thickened Slabs	18	cy	10.00	180			
	Stone for Slab on Grade 6"	41	cy	75.00	3,075			
	Stone for Slab on Grade Apparatus Bay	118	cy	75.00	8,848			
	Stone for Slab on Grade Apparatus Approach	33	cy	75.00	2,494			
	Haul off	1,165	cy	15.00	17,477			
02300	UNSUITABLE SOIL ALLOWANCE	NONE ASSUMED						
02600	SITE UTILITY ALLOWANCE					470,840	$6.59	1.57%
					-			
	Sitework							
	Demo Existing Piping	1,516	lf	15.00	22,740			
	Demo Existing Structures	4	ea	3000.00	12,000			
	Fire protection Tap/Valve	1	ea	5000.00	5,000			
	Fire protection Piping	104	lf	65.00	6,760			
					-			
	Water Service Vault	1	ea	10000.00	10,000			
	Water Service Tie-In	1	ea	5000.00	5,000			
	Water Service Piping	100	lf	65.00	6,500			
	Water Service Valves	4	ea	5000.00	20,000			
	Fire hydrants- & PIV	3	ea	8500.00	25,500			
	RELOCATE Gas Main	200	lf	75.00	15,000			
	RELOCATE South Sanitary Sewer Tie in Connection	2	ea	4500.00	9,000			
	RELOCATE South Install Sanitary Structure	2	ea	5000.00	10,000			
	RELOCATE South Sanitary Sewer Piping	714	lf	55.00	39,270			
	Sanitary Sewer Tie in Connection West	1	ea	4500.00	4,500			
	Install Sanitary Structure West	2	ea	5000.00	10,000			
	Sanitary Sewer Piping West	247	lf	55.00	13,585			
	Sanitary Sewer Tie in Connection EAST	1	ea	4500.00	4,500			
	Install Sanitary Structure East	2	ea	5000.00	10,000			
	Sanitary Sewer Piping East	75	lf	55.00	4,125			
	Road Closure and Patching	1	ea	10000.00	10,000			
					-			
	Storm East							
	Storm Piping	551	lf	35.00	19,285			
	Storm Structures	9	ea	3800.00	34,200			
	Oil/Water Separator	1	ea	25000.00	25,000			
	Misc Structures -Allow	4	ea	4500.00	18,000			
					-			
	Storm West							
	Storm Piping	985	lf	35.00	34,475			
	Storm Structures	23	ea	3800.00	87,400			
	Oil/Water Separator	Included in Garage						
	Misc Structures -Allow	2	ea	4500.00	9,000			
					-			
02600	UNDERGROUND STORM DETENTION ALLOWANCE					272,800	$3.82	0.91%
				0.06	-			
	Existing Site West	Existing Detention 4,000 sf surface area						
	Existing Impervious	64,981	sf	4000				
	New Impervious	65,322	sf	20.99	SF detention area			
		176,000						
	Existing Site East							
	Existing Impervious	0	sf					
	New Impervious	35,092	sf	2160.14	SF detention area			
		Replace and add Detention		6181.13	SF UG detention area			
	Replace and Add UG Detention	6,200	sf	44.00	272,800			
	10658sf foot print							
	Sitework							
	Mass Cut for underground Detention	3,583	cy	10.00				
	Cut For Safety Slopes	772	cy	10.00				
	Geotextile @ Top, Bottom and Perimeter	2,870	SY	4.00				
	Geotextile @ Pipe	1,421	SY	4.00				
	Geotextile Laps	644	SY	4.00				
	36" Pipe	1,358	lf	50.00				
	36" Tees	16	ea	2100.00				
	36" Elbows	7	ea	1800.00				
	Install Pipe	68	ea	395.00				
	Install Fittings	23	ea	395.00				

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	#8 Stone	2,781	cy	70.00				
	Less Pipe Volume #8 Stone	(355)	cy	70.00				
	Backfill Safety Slopes-Existing Materials	772	cy	15.00				
	Backfill 2ft Cap for underground detention-Existing Materials	802	cy	15.00				
	Reference	10,658	sf	448434.39				
	unit cost top area of UG Detention		$ 42.07					
02700	SITE PAVEMENTS					506,713	$7.09	1.69%
					-			
	Sitework							
	HVY Duty Asphalt Paving		sf	4.75	-			
	Light Duty Asphalt Paving Parking and Drive Lanes	30,412	sf	3.95	120,127			
		3,379	SY		-			
	Entry Pavement Allowance	942	sf	30.00	28,260			
	6ft Public Sidewalks	4,555	sf	6.00	27,330			
	4" Sidewalks-On site	3,585	sf	6.00	21,510			
	Curb and Gutter 50%	1,288	lf	25.00	32,188			
	Straight Curbs 50%	1,288	lf	19.00	24,463			
	Curb Ramps	24	ea	4500.00	108,000			
	Concrete Center Curb	274	sf	10.00	2,740			
	Site Stairs	1	al	10000.00	10,000			
	Concrete Approach Slabs	1,428	sf	8.00	11,424			
	9" Concrete Pavement , 15" Base	15,084	sf	8.00	120,672			
					-			
02900	LANDSCAPING -SEEDING-SODDING- RETAINING WALLS ALLOWANCE					198,690	$2.78	0.66%
					-			
	Sitework							
	Landscaping Allowance	1	ea	100000.00	100,000			
	Rain garden Allowance	1,500	SY	20.00	30,000			
	Trees	15	ea	950.00	14,250			
	Seeding w/blanket	2,649	SY	5.00	13,245			
	Retaining Wall East allowance	1,177	sf	35.00	41,195			
					-			
02800	SITE APPURTENANCES					294,650	$4.12	0.98%
					-			
	Sitework							
	Dumpster Enclosure	1	ea	40000.00	40,000			
	Generator Enclosure	1	ea	40000.00	40,000			
	flagpoles	3	ea	3500.00	10,500			
	Monumental Sign ALLOWANCE	1	al	50000.00	50,000			
	Fencing Allowance Property Lines	722	lf	75.00	54,150			
	Site Bollards-Entry Allowance	10	ea	5000.00	50,000			
	Parking Lot Control	1	al	50000.00	50,000			
					-			
03300	CONCRETE					1,336,531	$18.71	4.46%
	New Construction							
	Basement Addition Strip Footings	128	cy	750.00	96,000			
	Basement Walls	405	cy	950.00	384,750			
	Basement Wall Piers	60	cy	1200.00	72,000			
	Basement Pier Footings	167	cy	750.00	125,250			
	Basement Slab on Grade 5"	14,683	sf	6.00	88,098			
	Door Turned Down door stoops	24	cy	650.00	15,600			
	Additions- Slab on Deck	29,863	sf	7.50	223,973			
	Single Story East							
	Strip Footings	62	cy	750.00	46,500			
	Walls	53	cy	1000.00	53,000			
	Piers	78	cy	750.00	58,500			
	Thickened Footings for Block Partitions	18	cy	350.00	6,300			
	Slab on Grade Apparatus bay8"	4,754	sf	9.50	45,163			
	Slab on Grade 5"	2,214	sf	6.00	13,284			
	Apparatus bay Approach Slab footing	10	cy	700.00	7,000			
	Apparatus bay Approach Slab Stem wall	11	cy	950.00	10,450			
	Apparatus bay Approach Slab 8"	1,340	sf	9.50	12,730			
	Door Turned Down door stoops	5	cy	650.00	3,250			
	Pipe Bollards	15	ea	950.00	14,250			
	Mezzanine Slab on Decking	1,573	sf	7.50	11,798			
	Floor Preparation	51,514	sf	0.75	38,636			
	Misc Site Pads	1	al	10000.00	10,000			
					-			
04800	MASONRY					363,340	$5.09	1.21%
					-			
	New Construction							
	Addition Basement CMU Partitions	6,915	sf	20.00	138,300			
	1st Floor CMU Partitions	5,256	sf	20.00	105,120			
	Apparatus Bay Interior Block Partitions	2,776	sf	20.00	55,520			
					-			
	Renovations							
	Addition Basement CMU Partitions	2,470	sf	20.00	49,400			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Wall Penetrations	3	ea	5000.00	15,000			
05500	STRUCTURAL AND MISCELLANEOUS STEEL					3,182,786	$44.56	10.61%
	New Construction							
	Structural Floor System New 1st Floor Addition East	10,426	sf	55.00	573,430			
	Structural Floor System New 1st Floor Addition West	4,288	sf	55.00	235,840			
	Structural Floor System New 2nd Floor Addition East	11,081	sf	55.00	609,455			
	Structural Floor System New 2nd Floor Addition West	1,944	sf	55.00	106,920			
	Structural Floor System New 2nd Floor Addition Roof Deck	2,234	sf	55.00	122,870			
					-			
	Roof Framing System New West	2,056	sf	52.00	106,912			
	Roof Framing East	13,187	sf	52.00	685,724			
					-			
	Stairs East	2	flite	18000.00	36,000			
	Stairs West	2	flite	18000.00	36,000			
	Misc metals 2 Story	1	al	35000.00	35,000			
	Roof Deck Railings	134	lf	400.00	53,600			
					-			
	Apparatus Bay Roof Framing	7,899	sf	55.00	434,445			
	Stairs to Mezzanine	1	flite	18000.00	18,000			
	Mezzanine Railings	91	lf	150.00	13,650			
	Apparatus Bay Misc Steel	1	al	10000.00	10,000			
	Mezzanine Framing System	1,736	sf	40.00	69,440			
	Balcony Railings East	35	lf	300.00	10,500			
	Renovations							
	Misc metals	1	al	25000.00	25,000			
05500	FACADE FEATURE FRAMING-ALLOWANCE					80,000	$1.12	0.27%
	New Construction							
	Misc Element Framing	2,500	sf	15.00	37,500			
	Sheathing	2,500	sf	5.00	12,500			
					-			
	Renovations							
	Light Gauge Metal Truss Roof Framing System	1,500	sf	15.00	22,500			
	Sheathing	1,500	sf	5.00	7,500			
06100	ROUGH CARPENTRY					61,728	$0.86	0.21%
	New Construction							
	Roof Blocking	1,146	lf	12.00	13,752			
	In wall backing	5,390	lf	6.00	32,340			
	Renovations							
	Roof Blocking	205	lf	12.00	2,460			
	In wall backing	2,196	lf	6.00	13,176			
06400	MILLWORK AND FINISH CARPENTRY					220,950	$3.09	0.74%
	New Construction							
	FD Apparatus work Bench	19	lf	500.00	9,500			
	FD Apparatus Decon Laundry	11	lf	500.00	5,500			
	FD Residence Kitchen	19	lf	400.00	7,600			
	FD Kitchen south	10	lf	400.00	4,000			
	FD Kitchen island	10	lf	650.00	6,500			
	FD Wardrobes ALLOWANCE	36	ea	1200.00	43,200			
	Addition-Uppers and Lowers	63	lf	400.00	25,200			
	Addition-Break-Conf Uppers and Lowers	24	lf	500.00	12,000			
	Addition-Work Surfaces	33	lf	325.00	10,725			
	Lavatories	65	lf	375.00	24,375			
	Kitchen Pantry Shelves	10	lf	250.00	2,500			
	Linen Shelves	18	lf	250.00	4,500			
	Laundry Work Surface	14	lf	275.00	3,850			
	Window Sills	203	lf	65.00	13,195			
	Renovations							
	Lab Evidence counter	15	lf	500.00	7,500			
	Renovation uppers and Lowers	83	lf	400.00	33,200			
	Window Sills	117	lf	65.00	7,605			
	WATERPROOFING					74,928	$1.05	0.25%
					-			
	New Construction							
	New Basement Wall Waterproofing	8,741	sf	8.00	69,928			
	Underslab Waterproofing	None Assumed						
	Renovations							
	patch-tie in basement waterproofing systems	1	al	5000.00	5,000			
					-			
07200	INSULATION					42,072	$0.59	0.14%

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
					-			
	New Construction							
	Façade Insulation	See Exterior Wall System						
	Perimeter Insulation	9,024	sf	3.00	27,072			
	Misc Insulation	1	al	10000.00	10,000			
	Renovations							
	Misc Insulation Allowance	1	al	5000.00	5,000			
					-			
07500	ROOFING & SHEET METAL					1,300,674	$18.21	4.34%
					-			
	New Construction							
	Low Slope Roof and Deck Pavers-2nd Floor West	2,186	sf	75.00	163,950			
	Low Slope Roof and Deck Pavers-2nd Floor North	345	sf	75.00	25,875			
	Low Slope Roof and Deck Pavers-2nd Floor South	131	sf	75.00	9,825			
	Low Slope Roof-2 Story Addition	13,448	sf	30.00	403,440			
	Low Slope Roof Apparatus Wing	7,424	sf	30.00	222,720			
	Roof Coping	1,146	lf	40.00	45,840			
	Misc Sheet metal Flashing and Trim	1	al	20000.00	20,000			
	Roof Hatches	1	ea	10000.00	10,000			
	Exterior Soffits Allowance	1,000	sf	65.00	65,000			
	HVAC Unit Screen Face Materials, Structure included in Steel	640	sf	75.00	48,000			
	Renovations							
	Replace Existing Roofing	6,686	sf	34.00	227,324			
	Roof Coping	205	lf	40.00	8,200			
	Misc Sheet metal Flashing and Trim	1	al	2500.00	2,500			
	HVAC Unit Screen Face Materials, Structure included in Steel	640	sf	75.00	48,000			
Multiple	CANOPY ALLOWANCE					240,000	$3.36	0.80%
					-			
	New Construction							
	Primary Element-Canopy	450	sf	400.00	180,000			
					-			
	Allow for small door Canopies	300	sf	150.00	45,000			
	Renovations							
	Allow for small door Canopies	100	sf	150.00	15,000			
Multiple	EXTERIOR ENVELOPE					1,964,369	$27.50	6.55%
					-			
	New Construction							
	Apparatus Module							
	Apparatus Bay 20ft Bearing Walls CMU	6,488	sf	22.00	142,736			
	Less Apparatus bay doors	(1,372)	sf	22.00	(30,184)			
	Apparatus Bay Insulation, Vapor Barrier and Brick Cladding	6,476	sf	40.00	259,040			
	Less Apparatus bay doors	(1,372)	sf	40.00	(54,880)			
	Stone Accents Apparatus	325	lf	35.00	11,375			
	Stone Accents Apparatus	420	lf	35.00	14,700			
					-			
	Additions							
	Stairwells Both East and West	3,021	sf	22.00	66,462			
	New Exterior wall 28ft/parapet	9,791	sf	20.00	195,820			
	New 15ft Exterior Walls	4,241	sf	20.00	84,820			
	New 15ft Exterior Walls-Residence Balcony	660	sf	20.00	13,200			
					-			
	New Curtainwall	2,130	sf	90.00	191,700			
					-			
	Cladding Stairwells	1,500	sf	40.00	60,000			
	Cladding New Exterior Wall	10,451	sf	45.00	470,295			
	Cladding-15 ft walls	4,241	sf	50.00	212,050			
	Renovations							
	Existing exterior wall Recladding allowance	5,301	sf	60.00	318,060			
	Infill Existing @ Entry Window Wall system	367	sf	25.00	9,175			
07900	JOINT SEALANTS					79,334	$1.11	0.26%
					-			
	New Construction							
	Allow for Joint Sealants Exterior	15,532	sf	1.50	23,298			
	Allow for Joint Sealants Interior	43,454	sf	0.50	21,727			
	Allow for fire stopping	43,454	sf	0.25	10,864			
	Renovations							
	Allow for Joint Sealants Exterior	5,301	sf	1.50	7,952			
	Allow for Joint Sealants Interior	20,658	sf	0.50	10,329			
	Allow for fire stopping	20,658	sf	0.25	5,165			
					-			
08100	OVERHEAD DOORS					251,000	$3.51	0.84%
					-			
	New Construction							
	Apparatus Bay Doors - ALLOWANCE	7	ea	30,000	210,000			
	Lower Level	3	ea	6000.00	18,000			
	1st Floor	3	ea	6000.00	18,000			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Renovations							
	Overhead Coiling Grille @ Public Reception	1	ea	5000.00	5,000			
08100	DOORS, FRAMES AND HARDWARE					339,200	$4.75	1.13%
					-			
	New Construction							
	Single HM Doors	36	ea	1300.00	46,800			
	Double HM Doors	17	ea	2500.00	42,500			
	Single Wood Doors	57	ea	1500.00	85,500			
	Double Wood Doors	3	ea	2800.00	8,400			
	Residence Single Wood Doors	35	ea	1500.00	52,500			
	Doors West Wing Sacrificial	7	ea	1500.00	10,500			
	Access Control Doors	SEE LOW VOLTAGE						
	Renovations							
	Single HM Doors	35	ea	1300.00	45,500			
	Double HM Doors	4	ea	2500.00	10,000			
	Single Wood Doors	25	ea	1500.00	37,500			
	Access Control Doors	SEE LOW VOLTAGE						
08400	GLASS & GLAZING					274,834	$3.85	0.92%
					-			
	New Construction							
	Exterior Windows	Included in Exterior Wall						
	Exterior Windows Operable Sashes	Included in Exterior Wall						
	Storefront-Entrances	Included in Exterior Wall						
	Interior Wall Glazing	979	sf	46.00	45,034			
	Double AL Entry doors	7	openings	8500.00	59,500			
	AL doors	8	leaves	3100.00	24,800			
	AL doors operators	4	leaves	6500.00	26,000			
	Misc Door Lites	1	al	5000.00	5,000			
	Fitness Mirrors	750	sf	60.00	45,000			
	Public Transaction Windows	4	ea	11000.00	44,000			
	Renovations							
	Interior Wall Glazing	500	sf	46.00	23,000			
	Misc Door Lites	1	al	2500.00	2,500			
	ANALYSIS- COST TO REMOVE AND REPLACE EXISTING WINDOWS							
	Remove and Replace existing window walls	14,740		55/sf				
	Remove and replace windows	17,350		50/sf				
	Windows operable openings at ALL Punched Windows	72,000		$3 k/sash				
	Direct Cost	104,090						
	Mark-up and Contingencies	$ 116,581		12%				
09200	GYPSUM DRYWALL					590,460	$8.27	1.97%
					-			
	New Construction							
	Basement Walls-Furr out over existing Foundation Walls	1,942	sf	6.50	12,623			
	Basement Walls-Furr out Perimeter	4,199	sf	6.50	27,294			
	Basement Drywall Partitions to 12ft H	6,740	sf	9.60	64,704			
	1st Floor Perimeter drywall	3,950	sf	6.50	25,675			
	1st floor New Drywall Partitions to 12ft H	10,874	sf	9.60	104,390			
	2nd Floor Perimeter drywall	5,010	sf	6.50	32,565			
	2nd floor New Drywall Partitions to 12ft H	7,333	sf	9.60	70,397			
	Residence 2nd floor New Drywall Partitions to 12ft H	9,137	sf	10.00	91,370			
	Sacrificial 2nd Floor Perimeter drywall	1,652	sf	6.50	10,738			
	Sacrificial 2nd floor New Drywall Partitions to 12ft H	1,973	sf	9.60	18,941			
	Drywall Partitions to 9-6"	All Full height walls assumed						
	Renovations							
	Allow for Patching	1	al	10000.00	10,000			
	1st floor Drywall Partitions to 12ft	3,100	sf	9.60	29,760			
	1st floor Reclad Perimeter Walls	7,474	sf	4.00	29,896			
	2nd floor Drywall Partitions to 12ft	5,937	sf	9.60	56,995			
	2nd floor Reclad Perimeter Walls	1,278	sf	4.00	5,112			
					-			
09300	FLOORING AND TILE ALLOWANCE					813,144	$11.38	2.71%
					-			
	New Construction							
	Lobby Commons Flooring allowance	2,522	sf	25.00	63,050			
	Epoxy Flooring allowance-Detention Areas	1,813	sf	22.00	39,886			
	Apparatus bay Allowance	7,139	sf	13.00	92,807			
	Addition Sealed Concrete	6,281	sf	3.00	18,843			
	Addition Polished Concrete	8,409	sf	9.00	75,681			
	Addition LVT	11,654	sf	8.50	99,059			
	Addition Lab Flooring	1,291	sf	20.00	25,820			
	Addition Carpet	3,930	sf	4.00	15,720			
	Addition Tile Flooring	1,484	sf	14.00	20,776			
	Addition Tile wainscoting 5-4" Toilet Rooms	2,964	sf	18.00	53,352			
	Addition Wall Tile- 7ft showers	677	sf	16.00	10,832			
	Addition Rubber Flooring Fitness	2,058	sf	9.00	18,522			
	Addition VCT	2,695	sf	4.00	10,780			
	Addition Walk Off Mats	318	sf	55.00	17,490			
	Vinyl Base	9,522	lf	3.50	33,327			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Renovations							
	Lobby Commons Flooring allowance	835	sf	25.00	20,875			
	Renovation Sealed Concrete	2,957	sf	3.00	8,871			
	Renovation Polished Concrete	None Assumed						
	Renovation LVT	8,375	sf	8.50	71,188			
	Renovation Lab Flooring	1,046	sf	20.00	20,920			
	Renovation Carpet	4,029	sf	4.00	16,116			
	Renovation Toilet rooms-Tile Flooring	750	sf	12.00	9,000			
	Renovation Tile wainscoting 5-4" Toilet Rooms	1,882	sf	15.00	28,230			
	Renovation Wall Tile- 7ft showers	173	sf	16.00	2,768			
	Renovation VCT	1,476	sf	4.00	5,904			
	Vinyl Base	9,522	lf	3.50	33,327			
					-			
09500	CEILINGS					346,366	$4.85	1.15%
					-			
	New Construction							
	Exposed Structure-drywall painted	13,322	sf	3.00	39,966			
	ACT	24,349	sf	4.65	113,223			
	Drywall Ceilings	1,930	sf	10.00	19,300			
	Lab Ceilings	2,299	sf	5.00	11,495			
	LOBBY ACT	2,484	sf	6.00	14,904			
	Meeting ACT	3,672	sf	6.00	22,032			
	Living Quarters Ceilings-Assuming drywall	2,001	sf	10.00	20,010			
	Drywall Soffits	937	sf	10.00	9,370			
	Ceiling Accent Allowance	1	al	20000.00	20,000			
	Renovations							
	ACT	13,182	sf	4.65	61,296			
	Drywall Ceilings	477	sf	10.00	4,770			
	Ceiling Accent Allowance	1	al	5000.00	5,000			
	Drywall Soffits	500	sf	10.00	5,000			
09900	PAINTING					364,156	$5.10	1.21%
					-			
	New Construction							
	Lower Level	14,683	sf	5.68	83,399			
	1st Floor	7,220	sf	5.68	41,010			
	2nd Floor	12,639	sf	5.68	71,790			
	Apparatus Bay	7,220	sf	5.68	41,010			
	Mezzanine	1,692	sf	5.68	9,611			
	Renovations							
	Lower Level	7,113	sf	5.68	40,402			
	1st Floor	6,724	sf	5.68	38,192			
	2nd Floor	6,821	sf	5.68	38,743			
					-			
09900	INTERIOR WALL ACCENT ALLOWANCE					52,500	$0.73	0.18%
					-			
	New Construction							
	1st Floor	500	sf	50.00	25,000			
	2nd Floor	250	sf	50.00	12,500			
	Renovations							
	1st Floor	150	sf	50.00	7,500			
	2nd Floor	150	sf	50.00	7,500			
					-			
10000	SPECIALTIES					500,180	$7.00	1.67%
					-			
	New Construction							
	Display Cases	6	ea	15000.00	90,000			
	Display Cases 2nd Floor Conference Room	2	ea	10000.00	20,000			
	Fire Extinguishers	20	ea	500.00	10,000			
	Toilet/Bath/Shower Accessories	22	ea	3200.00	70,400			
	Louvers-Vents	1	AL	35000.00	35,000			
	Building Signage	1	al	25000.00	25,000			
	PD Lockers	80	ea	750.00	60,000			
	Turnout Lockers	36	ea	1200.00	43,200			
	FD Inspector Lockers	12	ea	450.00	5,400			
	Postal Specialties	1	ea	5000.00	5,000			
	Visual Display Boards	1	AL	10000.00	10,000			
	Operable partitions Framing System	37	lf	300.00	11,100			
	Operable partitions	373	sf	75.00	27,975			
	Wire Mesh Partitions	317	sf	65.00	20,605			
	Renovations							
	Fire Extinguishers	10	ea	500.00	5,000			
	Toilet and Bath Accessories	15	ea	3200.00	48,000			
	Louvers-Vents	1	ea	3500.00	3,500			
	Building Signage	1	al	5000.00	5,000			
	Visual Display Boards	1	AL	5000.00	5,000			
					-			
	Wall and Corner Guards	None Assumed						
	Operable partitions	None Assumed						

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
					-			
12000	WINDOW TREATMENTS					52,875	$0.74	0.18%
					-			
	New Construction							
	Window Treatments	1,500	sf	25.00	37,500			
	Renovations	585						
	Window Treatments	615	sf	25.00	15,375			
					-			
Multiple	DETENTION EQUIPMENT					232,320	$3.25	0.77%
					-			
	New Construction							
	Security Grade Single Doors	2	ea	5000.00	10,000			
	Security Ceilings	1,849	sf	35.00	64,715			
	Misc Detention Equipment Allowance	1	ea	35000.00	35,000			
	Detention Toilet room	1	al	15000.00	15,000			
	Renovations							
	Security Grade Single Doors	18	ea	5000.00	90,000			
	Security Ceilings	503	sf	35.00	17,605			
					-			
					-			
12000	MANUFACTURED CASEWORK-SPECIALTY PROGRAM EQUIPMENT					255,000	$3.57	0.85%
					-			
	New Construction	175,000						
	Evidence/Lab/ Processing	1	al	50000.00	50,000			
	Tactile Training MAT Room	1	al	20000.00	20,000			
	Quarter Master- PD	1	al	20000.00	20,000			
	Processing Storage at sallyport	1	al	10000.00	10,000			
	Patrol Ops Storage-Go Bag-Traffic Storage	1	al	10000.00	10,000			
	Small Equipment/Patrol Issue Storage	1	al	10000.00	10,000			
					-			
	Files Personnel records PD	1	al	5000.00	5,000			
	EOC	EXISTING TO REMAIN						
	Major Case Room	1	al	10000.00	10,000			
	Major Case Room Storage	1	al	5000.00	5,000			
	Conference Room Storage	1	al	5000.00	5,000			
					-			
	Quarter Master- FD	1	al	20000.00	20,000			
	Training Material Room FD	1	al	10000.00	10,000			
					-			
	Renovations							
	Maintenance-Storage Shelving Allowance	1	al	10000.00	10,000			
	Evidence Gun Storage	1	al	20000.00	20,000			
	Evidence Cash Storage	1	al	20000.00	20,000			
	Evidence Drug Storage	1	al	20000.00	20,000			
	Roll Call Room	1	al	10000.00	10,000			
					-			
13000	ELEVATORS					30,000	$0.42	0.10%
					-			
	Renovations							
	Cab Refresh Allowance	1	al	30000.00	30,000			
					-			
14000	EQUIPMENT					160,000	$2.24	0.53%
					-			
	New Construction							
	Slide Pole	1	ea	20000.00	20,000			
	Kitchen Equipment	1	ea	30000.00	30,000			
	Laundry Eqpt Allowance	1	ea	40000.00	40,000			
	Fitness equipment allowance	1	ea	50000.00	50,000			
	Misc Appliances allowance	1	ea	20000.00	20,000			
	Furniture of any kind	none assumed						
	Office Equipment	none assumed						
					-			
15300	FIRE PROTECTION ALLOWANCE					282,682	$3.96	0.94%
					-			
	New Construction							
	New Service Entry	1	al	20000.00	20,000			
	Lower Level	14,683	sf	4.50	66,074			
	1st Floor	7,220	sf	4.50	32,490			
	2nd Floor	12,639	sf	4.50	56,876			
	Apparatus Bay	7,220	sf	4.50	32,490			
	Mezzanine	1,692	sf	4.50	7,614			
	Renovations							
	Rework Heads	20,658	sf	3.25	67,139			
	Dry or Preaction System	NOT INCLUDED						
	Fire Pump	NOT INCLUDED						
					-			
15400	PLUMBING ALLOWANCE					1,171,986	$16.41	3.91%
	New Construction							
	Water Tap and Tie-in and entry	1	al	10000.00	10,000			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Gas Piping	1	al	25000.00	25,000			
	Backflow Preventor	1	ea	5000.00	5,000			
	Booster Pump	1	al	15000.00	15,000			
	Water Softener	1	al	10000.00	10,000			
	Apparatus Oil-Water Separator	1	ea	35000.00	35,000			
	Sallyport Oil-Water Separator	1	ea	10000.00	10,000			
	Grease Interceptor	1	ea	5000.00	5,000			
	Hot Water Heaters	2	ea	15000.00	30,000			
	Roof drains	14	ea	4500.00	62,296			
	General Hose Bibbs	6	ea	3800.00	22,800			
	Water Closets	17	ea	5500.00	93,500			
	Lavatories	27	ea	4200.00	113,400			
	Showers	11	ea	6500.00	71,500			
	Residence Kitchen Sink	1	ea	7500.00	7,500			
	Laundry Boxes	4	ea	3500.00	14,000			
	Janitor Sink	3	ea	4200.00	12,600			
	Electric water cooler	4	ea	4000.00	16,000			
	Floor Drains	31	ea	3800.00	117,800			
	PD Decontamination	1	AL	15000.00	15,000			
	PD Hose Bibbs	2	ea	3800.00	7,600			
	Sally port Trench Drains	30	LF	375.00	11,250			
	FD Decontamination	1	AL	15000.00	15,000			
	Apparatus bay Hose Bibbs	6	ea	3800.00	22,800			
	Apparatus Hose Reels	6	ea	7500.00	45,000			
	Apparatus Filling	1	al	30000.00	30,000			
	Apparatus Trench Drains	143	LF	375.00	53,625			
	Final Kitchen Equipment Hook-ups	1	ea	3500.00	3,500			
	Compressed Air Allowance	1	al	10000.00	10,000			
	Renovations							
	Plumbing Demo	20,415	sf	1.00	20,415			
	Water Closets	14	ea	5500.00	77,000			
	Lavatories Sinks	17	ea	4200.00	71,400			
	Floor Drains	21	ea	3800.00	79,800			
	Floor Cutting and patching allowance	1	al	25000.00	25,000			
	Janitor Sink	1	ea	4200.00	4,200			
	Electric water cooler	1	ea	4000.00	4,000			
					-			
15400	HVAC					3,888,095	$54.43	12.96%
	Area Analysis							
	New LL West	3,991	1,000	3.99				
	New LL East	10,681	1,000	10.68				
	New 1st Floor West	4,304	1,000	4.30				
	New 1str Floor East	10,954	1,000	10.95				
	Apparatus 1st Floor	2,230	1,000	2.23				
	New 2nd Floor East	11,121	1,000	11.12				
	New 2nd Floor West	2,163	1,000	2.16				
	Apparatus Bay	7,220	0					
		52,664	sf	45.44				
				Use 45 VAV				
	New Construction							
	Allow for temporary protection-ducts, grilles & louvers	1	AL	5000.00	5,000			
	Allow for filter changes	1	AL	10000.00	10,000			
					-			
	Hot Water System				-			
	New Boilers-2,000 MBH	3	ea	50000.00	150,000			
	Redundant Boiler-2,000 MBH	NOT INCLUDED						
	HW Pumps	5	ea	15000.00	75,000			
	HW Smaller Pumps	5	ea	3500.00	17,500			
	HW AHU-Piping	2	ea	15000.00	30,000			
	HW Reheat Coils	45	ea	2500.00	112,500			
	HW Perimeter radiation	104	lf	450.00	46,800			
	HW Cabinet heaters	1	ea	6500.00	6,500			
	HW Unit Heaters	1	ea	4000.00	4,000			
	Gas Fired Radiant Tube Heaters PD	81	lf	300.00	24,300			
	Gas Fired Radiant Tube Heaters FD	155	lf	300.00	46,500			
					-			
	Chilled Water System				-			
	New Air Cooled Chiller 200T	200	tons	2500.00	500,000			
	CW Pumps	2	ea	12000.00	24,000			
	CW Smaller Pumps	4	ea	3000.00	12,000			
					-			
	Air Side Systems				-			
	AHUs- CFM? Indoor modular	1	ea	200000.00	200,000			
	AHUs- CFM? Indoor modular	1	ea	200000.00	200,000			
	Make up Air Unit	1	ea	50000.00	50,000			
	VAV Boxes- 1000sf/box	45	ea	8500.00	382,500			
	ADDL Enhanced Control VAV Boxes	10	ea	8500.00	85,000			
	Ductwork & Insulation	52,664	sf	10.00	526,640			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Controls	52,664	sf	8.00	421,312			
	Test and Balance	52,664	sf	2.00	105,328			
					-			
	Exhaust for Evidence Storage	1	ea	10000.00	10,000			
	Exhaust for Sallyport	1	ea	7500.00	7,500			
	General Exhaust at PD Assessment, processing and holding areas	1	ea	10000.00	10,000			
	Fire- Apparatus exhaust	1	ea	10000.00	10,000			
	Fire- Magnagrip system	1	ea	50000.00	50,000			
	FD- Kitchen Hood Including Fan	1	al	8500.00	8,500			
	FD- Kitchen Exhaust Duct Black Iron	1	al	10000.00	10,000			
					-			
	Misc Cooling Systems				-			
	Ductless split system for Electrical Rooms	2	ea	9000.00	18,000			
	Ductless split system for Data server Rooms	2	ea	15000.00	30,000			
	Renovations							
	Area Analysis				-			
	Renovation 1&2	13,383	1,000	13.38				
	Renovation LL	7,032	2,000	3.52				
		20,415	sf	16.90				
				Use 17 VAV				
	HVAC Demolition	20,415	sf	1.00	20,415			
	Allow for temporary protection-ducts, grilles & louvers	1	AL	5000.00	5,000			
	Allow for filter changes	1	AL	10000.00	10,000			
					-			
	Hot Water System				-			
	New Boilers-2,000 MBH	IN New Const Value						
	Redundant Boiler-2,000 MBH	IN New Const Value						
	HW Pumps	IN New Const Value						
	HW Smaller Pumps	IN New Const Value						
	HW AHU-Piping	IN New Const Value						
	HW Reheat Coils	17	ea	2500.00	42,500			
	HW Perimeter radiation	None						
	HW Cabinet heaters	1	ea	6500.00	6,500			
	HW Unit Heaters	1	ea	4000.00	4,000			
	Gas Fired Radiant Tube Heaters PD	IN New Const Value						
	Gas Fired Radiant Tube Heaters FD	IN New Const Value						
					-			
	Chilled Water System				-			
	New Air Cooled Chiller 200T	IN New Const Value						
	CW Pumps	IN New Const Value						
	CW Smaller Pumps	IN New Const Value						
					-			
	Air Side Systems				-			
	AHUs- CFM? Indoor modular	IN New Const Value						
	AHUs- CFM? Indoor modular	IN New Const Value						
	Make up Air Unit	IN New Const Value						
	VAV Boxes- 1000sf/box	17	ea	8500.00	144,500			
	ADDL Enhanced Control VAV Boxes	4	ea	8500.00	34,000			
	Ductwork & Insulation	20,415	sf	10.00	204,150			
	Controls	20,415	sf	8.00	163,320			
	Test and Balance	20,415	sf	2.00	40,830			
					-			
	Misc Cooling Systems				-			
	Ductless split system for Electrical Rooms	1	ea	9000.00	9,000			
	Ductless split system for Data server Rooms	1	ea	15000.00	15,000			
		$ 3,332,781						
16000	ELECTRICAL ALLOWANCE					3,554,528	$49.76	11.85%
					-			
	New Construction							
	SERVICE AND PANELS	$ 376,000			-			
	3000A Switch	1	ea	15000.00	15,000			
	Switchboard SDHL 1600A	1	ea	7000.00	7,000			
	Switchboard SDHL 1600A	1	ea	7000.00	7,000			
	Distribution 800A	2	ea	4000.00	8,000			
	Distribution 600A	4	ea	3500.00	14,000			
	Transformer 300kva	2	ea	50000.00	100,000			
	Transformer 225kva	4	ea	15000.00	60,000			
	Branch Panel Boards 200A	6	ea	15000.00	90,000			
	Conduit and Cabling	1	al	75000.00	75,000			
					-			
	Generator-1,000KW	2	ea	250000.00	500,000			
	Paralleling Switchgear 3000A	1	ea		-			
	ATS-Life Safety -200A	1	ea		-			
	Optional Standby Branch 3000A ATS	1	ea		-			
	Life Safety Panelboards 100A	3	ea		-			
	Conduit and Cabling	1	al	50000.00	50,000			
					-			
	Grounding System	1	al	50000.00	50,000			
	Exterior Building Lighting Allowance	1	al	75000.00	75,000			
					-			
	Lighting Allowance	52,664	sf	12.00	631,968			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Lighting CONTROLS Allowance	52,664	sf	5.00	263,320			
					-			
	Power Allowance	52,664	sf	15.00	789,960			
	Renovations	20,415	sf					
	Lighting Allowance	20,415	sf	12.00	244,980			
	Lighting CONTROLS Allowance	20,415	sf	5.00	102,075			
					-			
	Power Allowance	20,415	sf	15.00	306,225			
	Sitework							
	Site Lighting	22	ea	7500.00	165,000			
					-			
16000	LOW VOLTAGE ALLOWANCE					1,374,221	$19.24	4.58%
					-			
	New Construction							
	TELEDATA CABLING				-			
	TELEPHONE AND DATA HEAD END EQPT	SOFT COST						
	Backbone- MDF to Computer Rooms	383	lf	25.00	9,575			
	Backbone- MDF to Computer Rooms Risers	108	lf	25.00	2,700			
	Terminations	8	ea	200.00	1,600			
	Ladder Rack Allowance	1	al	10000.00	10,000			
	Racks	6	ea	1500.00	9,000			
	Workstation Computers-Cabling and Terminations	87	ea	450.00	39,150			
	VoIP Telephone cabling/Terminations	87	ea	450.00	39,150			
	Security Cameras cabling/Terminations	86	ea	450.00	38,700			
					-			
	Wireless Access Points 1600 sf/point	27	ea	1100.00	29,875			
	AUDIO VISUAL SYSTEMS				-			
	Training Rooms	2	ea	15000.00	30,000			
	Conference Rooms	4	ea	10000.00	40,000			
					-			
	CARD ACCESS CONTROL SYSTEMS	$ 230,000			-			
	Access Control System	1	al	20000.00	20,000			
	Racks	2	ea	1500.00	3,000			
	Exterior Entry Doors, Workspaces to Public Corridors, MEP-T Rooms, Evidence and Lab Spaces	46	ea	4500.00	207,000			
					-			
	CCTV	$ 248,000			-			
	DVR	1	ea	25000.00	25,000			
	Racks	2	ea	1500.00	3,000			
	Exterior Security Cameras	11	ea	3000.00	33,000			
	Exterior Parking Areas	10	ea	3000.00	30,000			
	Exterior Entry Doors	13	ea	2000.00	26,000			
	Interior Vestibules and Lobbies	4	ea	2000.00	8,000			
	Interior Corridors	36	ea	2000.00	72,000			
	Holding Cells	7	ea	5000.00	35,000			
	Breathalyzer area	1	ea	4000.00	4,000			
	Interview Rooms	4	ea	3000.00	12,000			
					-			
	INTERCOM SYSTEMS	$ 17,000			-			
	Racks	1	ea	1500.00	1,500			
	Intercom Master System	1	al	3500.00	3,500			
	Exterior Entry Doors	5	ea	1500.00	7,500			
	Vestibule interior Doors	3	ea	1500.00	4,500			
	Other locations requiring public access to secured areas	NO ADDL LOCATIONS ASSUMED						
					-			
	PAGING SYSTEMS	$ 103,883			-			
	Racks	1	ea	1500.00	1,500			
	Paging Allowance - PD	22,461	sf	3.00	67,383			
	Locution System-FD	1	al	35000.00	35,000			
					-			
					-			
	FIRE ALARM				-			
	Fire Alarm Allowance- New Apparatus Bay to be served by locution	34,542	sf	4.50	155,439			
					-			
	Renovations							
	TELEDATA CABLING				-			
	TELEPHONE AND DATA HEAD END EQPT	BY OTHERS						
	Backbone- MDF to Computer Rooms	IN NEW CONSTRUCTION						
	Backbone- MDF to Computer Rooms Risers	IN NEW CONSTRUCTION						
	Terminations	IN NEW CONSTRUCTION						
	Ladder Rack Allowance	IN NEW CONSTRUCTION						
	Racks	IN NEW CONSTRUCTION						
					-			
	Workstation Computers-Cabling and Terminations	67	ea	450.00	30,150			
	VoIP Telephone cabling/Terminations	67	ea	450.00	30,150			
	Security Cameras cabling	26	ea	450.00	11,700			
					-			
	Wireless Access Points 1600sf/point	13	ea	1100.00	14,202			
					-			
	AUDIO VISUAL SYSTEMS				-			
	Conference Rooms	2	ea	5000.00	10,000			
					-			
	CARD ACCESS CONTROL SYSTEMS	$ 76,500			-			
	Access Control System	IN NEW CONSTRUCTION						
	Racks	IN NEW CONSTRUCTION						

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	Exterior Entry Doors, Workspaces to Public Corridors, MEP-T Rooms, Evidence and Lab Spaces	17	ea	4500.00	76,500			
					-			
	CCTV	$ 56,000			-			
	DVR	IN NEW CONSTRUCTION						
	Racks	IN NEW CONSTRUCTION						
	Exterior Security Cameras	2	ea	3000.00	6,000			
	Exterior Parking Areas	IN NEW CONSTRUCTION						
	Exterior Entry Doors	1	ea	2000.00	2,000			
	Interior Vestibules and Lobbies	IN NEW CONSTRUCTION						
	Interior Corridors	18	ea	2000.00	36,000			
	Drug Cash and Gun Storage	3	ea	2000.00	6,000			
	Breathalyzer area	IN NEW CONSTRUCTION						
	Interview Rooms	2	ea	3000.00	6,000			
					-			
	INTERCOM SYSTEMS				-			
	Racks	IN NEW CONSTRUCTION						
	Intercom Master System	IN NEW CONSTRUCTION						
	Exterior Entry Doors	IN NEW CONSTRUCTION						
	Vestibule interior Doors	IN NEW CONSTRUCTION						
	Other locations requiring public access to secured areas	NO ADDL LOCATIONS ASSUMED						
					-			
	PAGING SYSTEMS				-			
	Racks	IN NEW CONSTRUCTION						
	Paging Allowance - PD	16,162	sf	3.00	48,486			
					-			
	FIRE ALARM				-			
	Fire Alarm Allowance	20,658	sf	4.50	92,961			
					-			
	SUBTOTAL				28,294,933	28,294,933	$396.10	94.34%
	PRICING/DESGIN CONTINGENCY					SEE SUMMARY		
	SUBTOTAL					28,294,933	$396.10	94.34%
	GC Mark up and insurances				6.00%	1,697,696	$23.77	5.66%
	Total Hard Cost Budget					$29,992,629	$419.87	100.00%
	PARKING STRUCTURE							
	Parking Deck							
	1st Floor	15500	sf					
	Lower Level	15500	sf					
	Total	31000	sf					
						Project sf		31,000

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
01400	QA/QC TESTING					5,000	$0.16	0.11%
	Parking Deck Testing	1	al	5000.00	5,000			
					-			
01400	GENERAL CONDITIONS					140,317	$4.53	3.01%
	SITE SUPERVISION	4	mo	21650.00	86,600			
	Protect surfaces in new space	31,000	sf	0.25	7,750			
	Mobilization	1	al	1500.00	1,500			
	Field Office includes supplies, Technology Equipt etc	4	mo	1750.00	7,000			
	Storage Trailers	4	mo	125.00	500			
	Temporary Phone/Fax and Data service	4	mo	550.00	2,200			
	Temporary Toilets for the project	4	mo	160.00	640			
	Daily and Weekly Cleaning (4mh per Week)	17	wks	348.00	6,027			
	Final construction cleaning	31,000	sf	0.10	3,100			
	Dumpsters	10	Ea	750.00	7,500			
	Street Cleaning (2hrs every other week)	32	hrs	100.00	3,200			
	Concrete Wash out area	1	ea	3500.00	3,500			
	Construction Surveying	48	chrs	225.00	10,800			
					-			
01700	PREMIUM TIME ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
01700	WINTER CONDITION ALLOWANCE					5,000	$0.16	0.11%
					-			
	Winter Condition Allowance	1	al	5000.00	5,000			
					-			
02300	STRUCTURAL EXCAVATION					238,548	$7.70	5.12%
					-			
	DEWATERING ALLOWANCE	1	AL	3500.00	3,500			
	Sheeting Shoring South Property Line	1	al	15000.00	15,000			
	Mass Excavate	4,531	cy	10.00	45,310			
	Mass Excavate-Safety Slopes	868	cy	10.00	8,680			
	Backfill Exterior Walls-Stone	868	cy	40.00	34,720			
	Excavate Footings-Piers	1,018	cy	10.00	10,180			
	Backfill Footings-Piers- existing materials	1,018	cy	20.00	20,360			
	Stone for Slab on Grade	279	cy	90.00	25,122			
	Haul off- Dispose	5,399	cy	10.00	53,990			
	Excavation Contingency	10%		216861.67	21,686			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
02300	UNSUITABLE SOIL ALLOWANCE	NONE ASSUMED						
02600	SITE UTILITY ALLOWANCE					53,200	$1.72	1.14%
					-			
	UG Storm Piping							
	Storm Piping	364	lf	50.00	18,200			
	Storm Structures	4	ea	5000.00	20,000			
	Oil/Water Separator	1	ea	15000.00	15,000			
	Underground Detention System	Existing To Remain						
					-			
03300	CONCRETE					1,980,570	$63.89	42.54%
	Misc Site Pads	1	al	4500.00	4,500			
	Garage Strip Footings	190	cy	850.00	161,500			
	Garage Pier Footings	170	cy	850.00	144,500			
	Garage Retaining Walls 15ft	70	cy	950.00	66,500			
	Garage Retaining Walls 12 ft	168	cy	950.00	159,600			
	Garage Retaining Walls 7 ft	50	cy	950.00	47,500			
	Barrier Rails	83	cy	950.00	78,850			
	Columns 2ft square	61	cy	1500.00	91,500			
	Slab on Grade 5"	15,500	sf	6.00	93,000			
	Approach Slab footing	42	cy	750.00	31,500			
	Approach Slab Stem wall	41	cy	950.00	38,950			
	Approach Slab 6"	953	sf	9.50	9,054			
	Pipe Bollards	25	ea	950.00	23,750			
	Deck	287	cy	1800.00	516,667			
	Deck Cast in place Beams	199	cy	1800.00	358,200			
	Post tensioning	15,500	sf	10.00	155,000			
					-			
04800	MASONRY	SEE FAÇADE				-	$0.00	0.00%
05500	STRUCTURAL AND MISCELLANEOUS STEEL					397,500	$12.82	8.54%
	Roof Structure for Covered Parking	15,500	sf	25.00	387,500			
	Ladder	1	al	5000.00	5,000			
	Misc Metals	1	al	5000.00	5,000			
-	WATERPROOFING					25,728	$0.83	0.55%
					-			
	Below Grade, Retaining walls	4,288	sf	6.00	25,728			
					-			
07200	INSULATION					-	$0.00	0.00%
07500	ROOFING & SHEET METAL					358,700	$11.57	7.70%
					-			
	Low Slope Roofing	15,500	sf	22.00	341,000			
	Roof Copings	508	lf	25.00	12,700			
	Misc Trim	1	al	5000.00	5,000			
-	EXTERIOR CLADDING					604,505	$19.50	12.98%
					-			
	Parapet Only Light Gauge Framing	1,307	sf	20.00	26,140			
	Allow for Façade Materials	4,206	sf	65.00	273,390			
	Allow for Façade Materials 1st floor roof area and parapet	2,465	sf	65.00	160,225			
	Allow for Façade Materials- Mesh Lower Level	440	sf	50.00	22,000			
	Allow for Façade Materials- Mesh 1st floor	2,455	sf	50.00	122,750			
09500	CEILINGS					67,361	$2.17	1.45%
					-			
	Liner Panel	9,623	sf	7.00	67,361			
09900	COATINGS					108,500	$3.50	2.33%
					-			
	Deck Waterproofing-1st Floor ONLY	15,500	sf	7.00	108,500			
					-			
10000	SPECIALTIES					22,000	$0.71	0.47%
					-			
	Allow for Parking control	See Base Project- Controlled at Street						
	Signage/Accessories	1	al	10000.00	10,000			
	Striping	80	ea	150.00	12,000			
					-			
15300	FIRE PROTECTION ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
15400	PLUMBING ALLOWANCE					111,290	$3.59	2.39%
	Drain Tile	343	lf	30.00	10,290			
	UG Piping	100	lf	40.00	4,000			
	Trench Drains	96	lf	500.00	48,000			
	Deck Drains	4	ea	5500.00	22,000			
	Roof Drains	6	ea	4500.00	27,000			
	Assumed to be all Gravity Drained-no pump stations assumed							
16000	ELECTRICAL ALLOWANCE					231,000	$7.45	4.96%
					-			
	Power-Service	1	al	25000.00	25,000			
	Lower Level Lighting	15,500	sf	6.00	93,000			

Project Cost Estimate Details

UCI CODE	DESCRIPTION	QUANT.	UNIT	UNIT COST	TOTAL COST	CATEGORY COST	COST PER SF	% COST
	1st Floor Lighting	15,500	sf	6.00	93,000			
	Exterior Lighting	4	ea	5000.00	20,000			
					-			
16000	LOW VOLTAGE ALLOWANCE	NONE ASSUMED				-	$0.00	0.00%
	SUBTOTAL				4,349,219	4,349,219	$140.30	93.41%
	PRICING CONTINGENCY				1.00%	43,492	$1.40	0.93%
	SUBTOTAL					4,392,712	$141.70	94.34%
	GC Mark up and insurances				6.00%	263,563	$8.50	5.66%
							$0.00	0
	Total Hard Cost Budget					$4,656,274	$150.20	100.00%

Acknowledgements

Office of the Mayor

Mayor John R. Dennis

West Lafayette Redevelopment Commission

Lawrence Oates – President

Brad Marley – Vice President

Darrell Clase

Patrick Hagmaier

John Meyers

Holly Keckler

West Lafayette Fire Department

West Lafayette Police Department

City of West Lafayette Development Department