



Facility Professional Services

FY 2020 ENGINEERING & ARCHITECTURAL SERVICES

STAFFING REPORT

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TABLE OF CONTENTS

Executive Summary.....	4
Legislative Direction.....	4
Value of work authorized.....	4
Methods.....	5
Metrics.....	5
Projects per Project Manager.....	5
Projects that were not completed on schedule and the reason for the delay.....	5
The number and cost of the change orders and the reason for each change order.....	5
Program Background.....	6
Program Performance METRICS.....	7
Projects per project manager.....	7
Changes to cost and/or schedule.....	14
Projects that were not completed on schedule and the reason for the delay.....	16
Conclusion of analysis for required metrics.....	24
Diverse Business Inclusion.....	24
Claims and Disputes.....	27
Notable Projects.....	28
Awards.....	32
Appendix.....	35

EXECUTIVE SUMMARY

Facility Professional Services (FPS) consists of four work teams within the Department of Enterprise Services (DES). These include:

- Engineering & Architectural Services (E&AS)
- Project Planning & Delivery (PPD)
- Department of Corrections (DOC)
- Department of Social Health Services (DSHS)

FPS division supports the DES mission of strengthening the business of government by providing professional management for public works construction projects throughout the state in a manner that is safe, efficient, and cost effective. Effective project management is essential to the success of any public works project. The expertise and management provided by FPS allows state and local agencies as well as community colleges to better focus on their essential program services.

Legislative Direction

In 2015, [House Bill 1115, Section 1096](#) directed DES to provide an annual report that provides information on the FPS staffing appropriation, referred to in the bill as E&AS. Please note that E&AS is one of four contributing programs. This annual report to the Office of Financial Management (OFM) and legislative fiscal committees includes:

1. The number of projects managed by each FPS project manager compared to previous biennia;
2. Projects that had days added to the schedule and the reasons for those schedule changes; and
3. The number and cost of the change orders and the reason for each change order.

In addition to these required metrics, this report provides information on DES public works contracting diversity and inclusion efforts.

Value of work authorized

FPS managed an average of 669 projects each fiscal year during the last two biennia. FY2020 was consistent by managing 666 projects that year. The average value of work authorized each fiscal year is approximately \$293 million.

Figure 1 –Total Value of Work Authorized

Value of Work Authorized			
	Professional Design Services Contract	Construction Contract	Total
FY2015	\$ 40,895,617	\$ 291,768,159	\$ 332,663,776
FY2016	\$ 34,604,687	\$ 213,024,370	\$ 247,629,057
FY2017	\$ 49,666,608	\$ 299,659,153	\$ 349,325,761
FY2018	\$ 24,295,075	\$ 121,428,995	\$ 145,724,070
FY2019	\$ 54,759,685	\$ 255,325,834	\$ 310,085,519
FY2020	\$ 76,441,877	\$ 296,780,764	\$ 373,222,641

Methods

It is not uncommon for public works projects to begin and end outside of one fiscal year or begin and end outside of one biennium. This report contains data and analysis for fiscal year 2015 (FY15) through fiscal year 2020 (FY20). For the purposes of this report, all values reported are based on the fiscal year in which an invoice and/or change order was approved by a project manager regardless of the fiscal year or biennium in which the project began.

Cost figures exclude sales tax.

Metrics

Projects per Project Manager

In FY 2020, Project Managers on E&AS and PPD Programs oversaw an average of 22 projects each. They oversaw an average of 21 projects each during the 2017-2019 biennium and an average of 17 projects each during the 2015-2017 biennium.

In FY 2020, the average number of projects per project manager for the DSHS program was reduced to 9 per project manager. In FYs 17-19 it was steady at 13.

In FY 2020 Project managers in the DOC program saw an increase to 12 projects per manager, up from 7 projects during the 2017-2019 biennium.

Projects that were not completed on schedule and the reason for the delay

A total of 133 projects had approved contractual changes, which added additional days to the schedule of work during FY20. In FY19, 157 projects had an approved contractual change which added additional days to the schedule of work.

The most common reason for changes in project schedules during FY2020 was latent conditions (unforeseen issues usually related to existing conditions of building or site). Client agency decisions to change the scope of the project are the second most common reason for the addition of days to project schedules. This is consistent with the 17-19 biennium.

The number and cost of the change orders and the reason for each change order

In 2020, there were 1,642 approved contract change orders with a total cost of \$64,695,134. There were Alternative Public Works Construction Phase Change Orders totaling \$433,879.¹ By comparison, there were 1,534 approved contract change orders with a total cost of \$26,985,246 during FY19 and one Alternative Public Works Construction Phase Change Order totaling \$23,889,437.

Change orders are initiated any time there is a change in scope, schedule, or budget to a project. However, a change order does not always equate to delays in the project. Reasons for change orders vary. The most common reason in FY 2020 was project scope changes. The second most common was latent conditions. This is consistent with prior years. For larger projects, it is not uncommon to have several change orders over the course of a project.

¹ Design Build and General Contractor/Construction Manager (GC/CM) public works contracts include the contractor during the design phase. The construction phase is added by change order. Because the construction phase is the most substantial portion of the contract for alternative public works a new change order category was added to track these changes separately.

PROGRAM BACKGROUND

The E&AS program was created in 1959 as a division of General Administration. During the 2011 Washington State legislative session Senate Bill 5931 was passed eliminating four existing state departments including General Administration, and creating the Department of Enterprise Services. PPD was formed in 2018, in order to provide focused services on the state capitol campus.

E&AS and PPD are housed within the FPS division of DES. Project managers include professional engineers, registered architects and professional construction managers. The primary responsibilities of project managers include:

Project Management

- Assisting client agencies in solving complex facilities problems.
- Providing technical assistance in development of capital budgets.
- Providing comprehensive professional project management services for capital project development, design, construction, and closeout.

Coordination of Professional Design Services

- Concurrently manage and contract for professional architectural/engineering (A/E) services in the development of complex design and bidding documents, construction administration, and closeout for a variety of projects involving new construction or repairs/renovations for state client agencies.
- Review and approve bid documents, specifications, and A/E cost estimates.
- Provide expertise and review for design cost estimates, construction contract administration cost control, scheduling, and associated contract issues.

Administer and Manage Construction Contracts

- Administer and manage construction contracts for many concurrent public works projects for various state client agencies.
- Provide construction contract administration for new construction and the repair and alteration of existing state facilities or infrastructure.
- Review and approve change orders, and related project milestones.
- Resolve issues related to substantial completion and closeout of capital projects, including punch list and warranty claim issues.

As subject matter experts, FPS project managers oversee the development and execution of the following public works deliverables and project delivery methods:

- ***Planning and Feasibility Studies.*** Preliminary planning and investigations to determine the potential benefits of a specific project or activity. The main purpose of a feasibility study is to consider all factors associated with a project and to determine benefits, risks, challenges and impacts for the stakeholders involved.
- ***Predesign Reports.*** During a predesign, project alternatives are analyzed and a preferred option is identified. Studies are done to analyze space requirements, existing conditions, constraints and opportunities of the proposed site, and the expected project cost.
- ***Design-Bid-Build Construction.*** Design-Bid-Build is a project delivery method in which the agency or owner contracts with separate entities for the design and construction of a project. This is the

traditional method for project delivery and consists of three main phases: design phase, bidding phase, and construction phase.

- **Design-Build Construction.** Design-Build is a project delivery method in which design and construction services are fulfilled by a single firm. Design-Build is used to minimize risks for the project owner and reduce the delivery schedule by overlapping the design and construction phase of a project.
- **General Contractor/Construction Manager (GC/CM).** This contract method employs the services of a contractor to assist in the design and construction management, to serve as the general contractor, and to guarantee the facility will be built within budget.
- **Job Order Contracting (JOC).** Under this contract method, the contractor agrees to perform an indefinite quantity of public works jobs, defined by individual work orders, over a fixed period of time.

Throughout its 60 year history, FPS has provided stewardship of Washington state resources through safe, efficient and effective construction project management. Providing a variety of services and using several different project delivery methods, FPS strives towards customer satisfaction, team satisfaction and fiscal health. Our dedicated staff of registered professional engineers and architects, professional construction managers, and support professionals will continue to strengthen the business of government, allowing our clients to focus on their essential services.

PROGRAM PERFORMANCE METRICS

In a culture of continuous improvement, metrics play a key role in identifying areas of success and opportunity. This section will provide analysis of the metrics required per the capital budget appropriation for E&AS staffing.

Projects per project manager

The number of projects per project manager varies from project manager to project manager and from month to month. These variations in workload can be attributed to staffing turnover, complexity of projects, client needs, capital funding allocations for project costs, the point in time of biennium and availability of staffing funds.

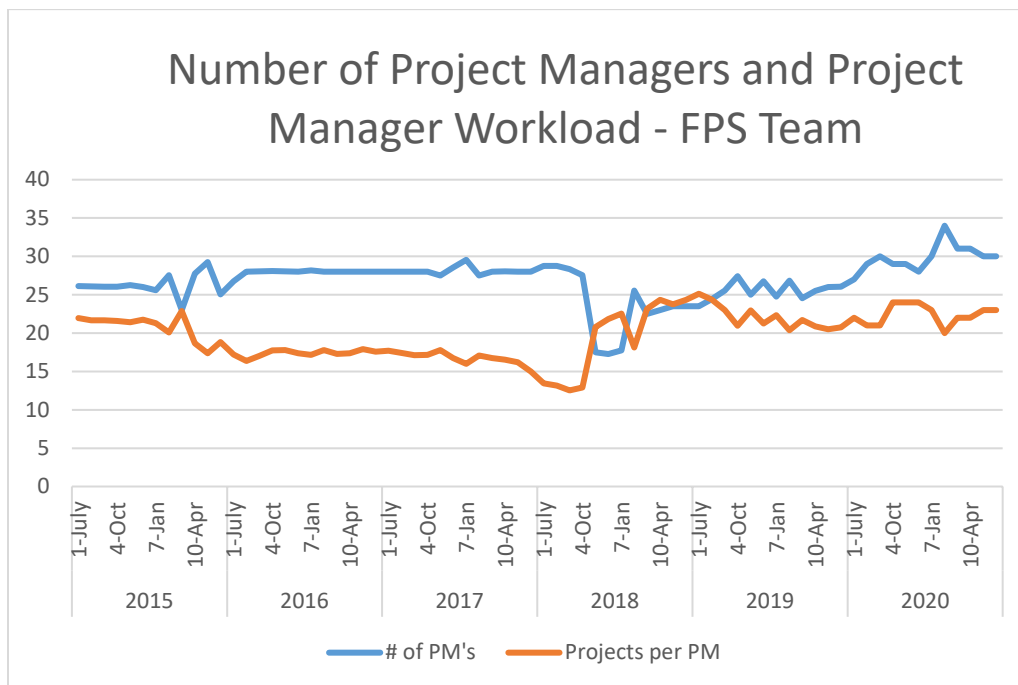
Better understanding of the relational database that stores project data as well as better data extraction methods have allowed us to report our workloads more completely.

Staffing levels – FPS Team

Figure 2 – Average Number of Projects per Project Manager previous two biennia – FPS Team

		FPS Team											
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
FY15	# PMs	26	26	26	26	26	26	26	28	23	28	29	25
	# Projects	573	565	565	563	562	565	544	553	526	518	508	472
	Average	22	22	22	22	21	22	21	20	23	19	17	19
FY16	# PMs	27	28	28	28	28	28	28	28	28	28	28	28
	# Projects	460	459	478	498	499	487	484	498	484	487	501	492
	Average	17	16	17	18	18	17	17	18	17	17	18	18
FY17	# PMs	28	28	28	28	28	29	30	28	28	28	28	28
	# Projects	496	488	479	481	489	478	473	470	469	464	454	420
	Average	18	17	17	17	18	17	16	17	17	17	16	15
FY18	# PMs	29	29	28	28	18	17	18	26	23	23	24	24
	# Projects	387	379	355	355	364	377	400	463	522	560	559	572
	Average	13	13	13	13	21	22	23	18	23	24	24	24
FY19	# PMs	24	24	26	27	25	27	25	27	25	26	26	26
	# Projects	591	596	587	575	574	568	553	547	532	532	533	540
	Average	25	24	23	21	23	21	22	20	22	21	21	21
FY20	# PMs	27	29	30	29	29	28	30	34	31	31	30	30
	# Projects	581	619	640	686	687	677	677	678	679	688	695	685
	Average	22	21	21	24	24	24	23	20	22	22	23	23

Figure 3 – Number of Project Managers versus Average Number of Projects - FPS Team



The FPS Team ended the 13-15 biennium with 25 project managers on staff. The addition of two new project managers during July and one new project manager in August of FY16 brought the total to 28. Staffing levels remained stable at 28 project managers through November of FY17. In December and January of FY17, two additional project managers joined these teams with two departing in February. Staffing levels remained at 28 project managers at the close of the 15-17 biennium.

Overall growth in staffing from the end of 13-15 biennium to the end of 15-17 biennium was an increase of 12 percent.

The 17-19 biennium began with 28 project managers on staff. During July and August of FY18, one additional project manager was added and one departed, allowing staffing levels to remain stable between June FY17 and October FY18.

Delayed adoption of the 17-19 capital budget resulted in a 39 percent reduction in staff, from 28 to 17 project managers between October FY18 and December FY18. Staffing levels began to increase in February FY18 with the addition (or return) of nine project managers, bringing the total to 26; then decreasing again to 23 during March and April of FY18, through attrition. Several project managers who were not laid off, but were at risk of being laid off, began looking for other employment. Three of them were successful in finding other positions. Between May FY18 and August FY19 staffing levels were stable at 24 project managers. The staffing fluctuations between September FY19 and April FY19 can be attributed to hiring new project managers in anticipation of replacing retiring project managers in October FY19 and January FY19. Staffing levels stabilized in April FY19 at 26 Project Managers. By June of FY2020, the number of project managers increased to 30.

Project Manager Workload – FPS Team

The 15-17 biennium began with 460 active projects carried over from the previous biennium and an average workload of 17 projects for project managers on the FPS Team. Workloads fluctuated between 15 and 18 projects over the course of the biennium. The biennium ended with a workload of 15 projects per project manager, on average.

By October FY18, the average workload was 13 projects per project manager. A slight decrease in workload occurred during February of FY18, but with the adoption of the 17-19 budget, staffing levels rebound. Workloads increased to 23 projects per project manager in March of FY18, reaching 25 projects per project manager by July of FY19.

At the close of the 17-19 biennium, project managers were managing an average of 21 projects each. This was maintained in FY2020. By June of FY2020, the number of project managers increased to 30 but was offset by the increase in the number of projects. In June, project managers averaged 23 projects each.

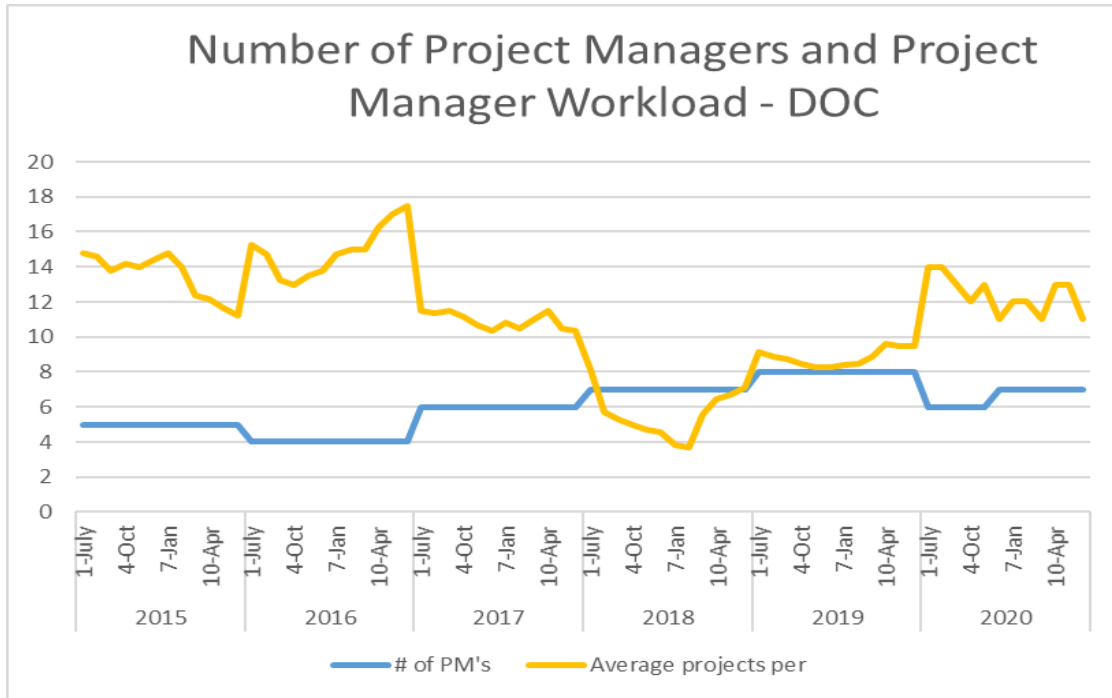
Staffing levels - DOC Team

The DOC provides innovative solutions for DOC expansion planning and preservation projects. The DOC team is staffed by both DES and DOC project managers, works under the guidance of a DES Assistant Program Manager, and receives public works contract administration as well as claims resolution support from DES.

Figure 4 –Average Number of Projects per Project Manager previous two biennia – DOC Team

		DOC Team											
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
FY15	# PMs	5	5	5	5	5	5	5	5	5	5	5	5
	# Projects	74	73	69	71	70	72	74	70	62	61	58	56
	Average	15	15	14	14	14	14	15	14	12	12	12	11
FY16	# PMs	4	4	4	4	4	4	4	4	4	4	4	4
	# Projects	61	59	53	52	54	55	59	60	60	65	68	70
	Average	15	15	13	13	14	14	15	15	15	16	17	18
FY17	# PMs	6	6	6	6	6	6	6	6	6	6	6	6
	# Projects	69	68	69	67	64	62	65	63	66	69	63	62
	Average	12	11	12	11	11	10	11	11	11	12	11	10
FY18	# PMs	7	7	7	7	7	7	7	7	7	7	7	7
	# Projects	57	40	37	35	33	32	27	26	39	45	47	50
	Average	8	6	5	5	5	5	4	4	6	6	7	7
FY19	# PMs	8	8	8	8	8	8	8	8	8	8	8	8
	# Projects	73	71	70	68	66	66	67	68	71	77	76	76
	Average	9	9	9	9	8	8	8	9	9	10	10	10
FY20	# PMs	6	6	6	6	6	7	7	7	7	7	7	7
	# Projects	81	82	77	74	75	78	86	86	80	88	89	77
	Average	14	14	13	12	13	11	12	12	11	13	13	11

Figure 5 - Number of Project Managers versus Average Number of Projects - DOC Team



Much like the DSHS team, the DOC team had very stable staffing levels during the 15-17 and 17-19 biennia. At the end of the 13-15 biennium, the DOC team had five project managers. That number decreased to four and remained stable during all of FY16. Staffing levels increased to eight project managers at the close of FY19. This was reduced to 7 by the end of FY2020.

Project Manager Workload - DOC Team

The DOC team began the 15-17 biennium with 61 active projects carried over from the previous biennium and an average workload of 15 projects per project manager. The average workload increased to 18 by end of FY16 and then declined to 10 projects per project manager by the end of the biennium.

At the start of FY18, the average workload for project managers on the DOC team was eight projects. This number decreased steadily to four projects each by January FY18 and varied between six and 10 through the end of biennium. There was no overall change in workload between the end of the 15-17 biennium and the 17-19 biennium for the DOC team. By the end of FY2020, however, the workload averaged 11 projects per project manager.

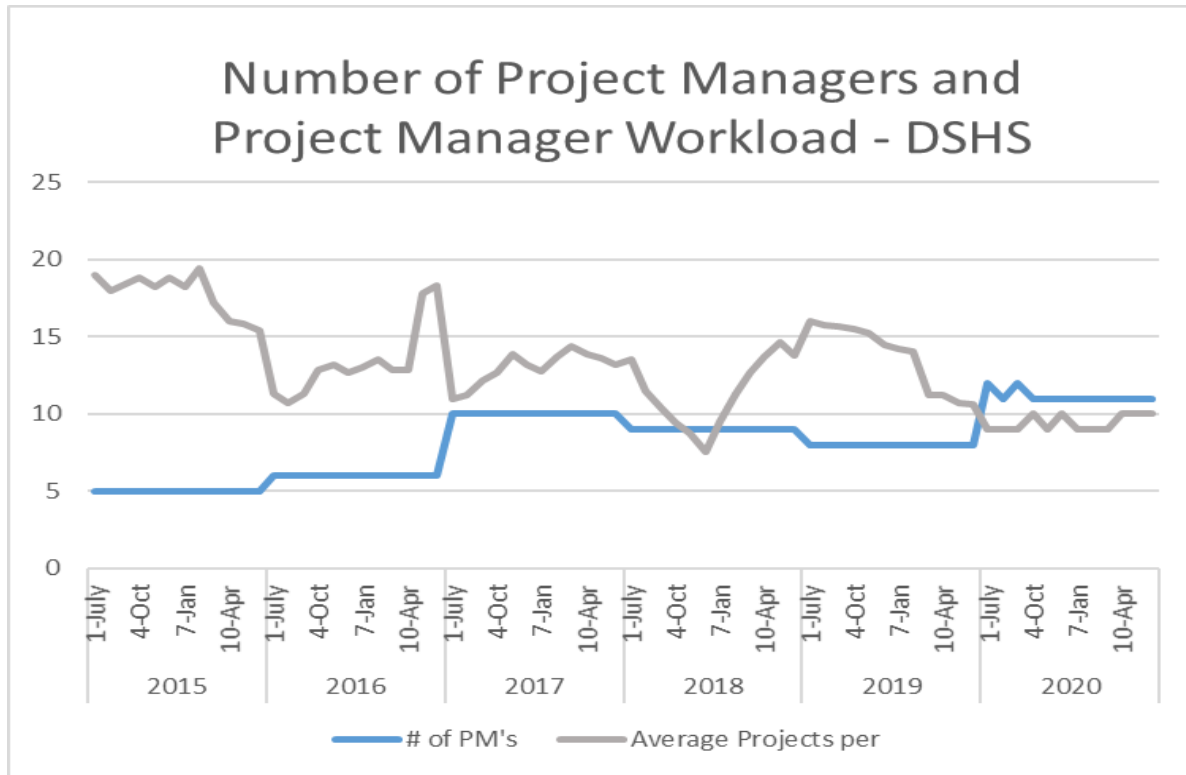
Staffing levels - DSHS Team

The DSHS team centrally manages construction, renovation and preservation of DSHS hospitals, residential rehabilitation centers, institutions and community facilities. The DSHS team is staffed by DSHS project managers and works under the guidance of a DES Assistant Program Manager. It also receives public works contract administration and claims resolution support from DES.

Figure 6 – Average Number of Projects per Project Manager previous two biennia – DSHS Team

		DSHS Team											
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
FY15	# PMs	5	5	5	5	5	5	5	5	5	5	5	5
	# Projects	95	90	92	94	91	94	91	97	86	80	79	77
	Average	19	18	18	19	18	19	18	19	17	16	16	15
FY16	# PMs	6	6	6	6	6	6	6	6	6	6	6	6
	# Projects	68	64	68	77	79	76	78	81	77	77	107	110
	Average	11	11	11	13	13	13	13	14	13	13	18	18
FY17	# PMs	10	10	10	10	10	10	10	10	10	10	10	10
	# Projects	110	112	122	127	139	132	128	137	144	139	136	132
	Average	11	11	12	13	14	13	13	14	14	14	14	13
FY18	# PMs	9	9	9	9	9	9	9	9	9	9	9	9
	# Projects	122	103	93	85	79	68	86	102	114	123	132	124
	Average	14	11	10	9	9	8	10	11	13	14	15	14
FY19	# PMs	8	8	8	8	8	8	8	8	8	8	8	8
	# Projects	128	126	125	124	122	116	114	112	90	90	86	85
	Average	16	16	16	16	15	15	14	14	11	11	11	11
FY20	# PMs	12	11	12	11	11	11	11	11	11	11	11	11
	# Projects	102	104	107	106	102	105	103	102	99	111	109	110
	Average	9	9	9	10	9	10	9	9	9	10	10	10

Figure 7 – Number of Project Managers versus Average Number of Projects – DSHS Team



Staffing levels for the DSHS team are significantly more stable than the E&AS Teams A & B and PPD Program. In addition to the support they receive from DES, DSHS resources its project managers from the capital projects they support. At the end of the 13-15 biennium, the DSHS team consisted of five project managers. This number increased to six in July FY16 then increased again to 10 in July FY17. Staffing levels decreased to nine project managers in FY18 and eight during FY19. In FY2020, DSHS gained one position ending the year with 11 project managers.

Project Manager Workload - DSHS Team

The 15-17 biennium began with 68 active projects carried over from the previous biennium for the DSHS team, with an average project manager workload of 11 projects. Workloads varied between 11 and 18 projects per project manager over the course of the biennium, with an increase of 18.2 percent from start to end.

Project managers on the DSHS team began the 17-19 biennium managing an average of 14 projects each. The biennium ended with an average of 11 projects per project manager. FY2020 maintained 11 project managers with an average of 10 projects per project manager.

CHANGES TO COST AND/OR SCHEDULE

Changes can increase or decrease the cost of the project, and can increase or decrease the time in the project schedule. There are a number of reasons a change may need to occur in the course of a project.

Reasons for changes

1. **Latent Conditions:** Latent conditions represent a category of unforeseen issues, which are not known at the time of initial design, usually related to existing conditions of building or site. Common examples are:
 - a. subsurface discoveries of differing site conditions
 - b. weather delays
 - c. discovery of unknown existing building components and dimensions exposed during demolition or construction remodeling
2. **Agency Scope Change:** Specific requests by the owner to meet new requirements. This is a broad term representing that the owner, or client agency, asked for a change. Sub-categories include:
 - a. scope change
 - b. enhancement and improvements
 - c. risk management
 - d. additional funding outside of the capital budget was obtained
 - e. re-budgeting by client
 - f. delay impacts in which a project schedule delay may require compensation be authorized to the contractor, as recognition of the owner's responsibility for the impacts
3. **Design Omissions:** A certain, nominal level of design omissions are anticipated and are covered in the contingency planning. Omissions often represent poor or hasty planning by the project team, and may result in additional work and increased cost to the owner.
4. **Code Requirement:** Code requirements can change during a project; either through interpretations by the Attorney General's Office or if codes were updated after the design phase was completed, or construction had begun.
5. **Design Error:** Includes mistakes in design where the error was constructed (or under construction) and required retrofitting or replacement to correct the error. Impacts to the project could be schedule delay or loss of labor productivity for which the owner becomes liable.
6. **Value Engineering:** Value engineering should be applied to changes, which result in either lower cost to the owner through alternative design options, or increased cost resulting from the owner's decision to change the original design to improve serviceability, longevity, appearance, and value. Value engineering typically results in a deductive change (a cost savings) which can be used elsewhere in the project.

7. **APW Construction Phase:** The APW Construction Phase reason code is applied to projects using the Design-Build and Progressive Design-Build delivery method. When using these delivery methods, a single contract is executed with a design-builder to complete the project in two phases. Phase 1 generally includes design and other services culminating in the design-builder providing the owner a Guaranteed Maximum Price (GMP) Proposal. Provided the owner and design-builder are able to reach an agreement, Phase 2 is executed as a change order with the reason code APW Construction Phase.

8. **Administrative:** This reason is assigned internally within FPS to account for things such as duplicate entry of change orders or change of project number. This reason code is not a field authorization, change order proposal or JOC modification. Instead is an internal control for data correction.

Categories of Changes

A change order, also referred to as a contract change, is a document that states and defines any alterations in the scope or cost of the work agreed to by the owner, contractor, and architect/engineer.

The way a change is incorporated into existing contract documents falls into three categories:

1. Change Order Proposal
2. Field Authorization
3. JOC Modifications

The process for agreeing to a change order begins when one of the parties to a contract requests a change to that agreement.

The contractor prepares a ***Change Order Proposal (COP)*** quoting a price for the extra work. Once the owner and contractor have agreed on scope, price, and schedule, a formal, written change order is prepared and signed by all parties. Then, the contractor proceeds to perform the changed work.

If work must start right away to prevent construction delays or mitigate an unsafe condition, an immediate authorization for a contractor to perform needed work, known as ***Field Authorization (FA)***, is issued.

JOC Modifications (Mod) begin their lives as “Change Order Proposals” on a Job Order Contracting Work Order. When fully executed, they become JOC Modifications. Because of the pricing structure of labor and material, as well as the value threshold on Job Order Contracting Work Orders, these types of Change Orders are classified differently internally to help ensure the integrity of our Job Order Contracting processes.

Each Change Order Proposal, Field Authorization and JOC Modification has only one cause or reason. A Change Order Proposal, Field Authorization and JOC Modification must be revised into a Change Order, and the Change Order completed for the contractor to get paid for the work. Although a single Change Order Proposal, Field Authorization or JOC Modification can move forward to become a Change Order, it is more common to “bundle” several into one Change Order.

One result of “bundling” Change Order Proposals, Field Authorizations and JOC Modifications is that an executed Change Order may have more than one cause or reason.

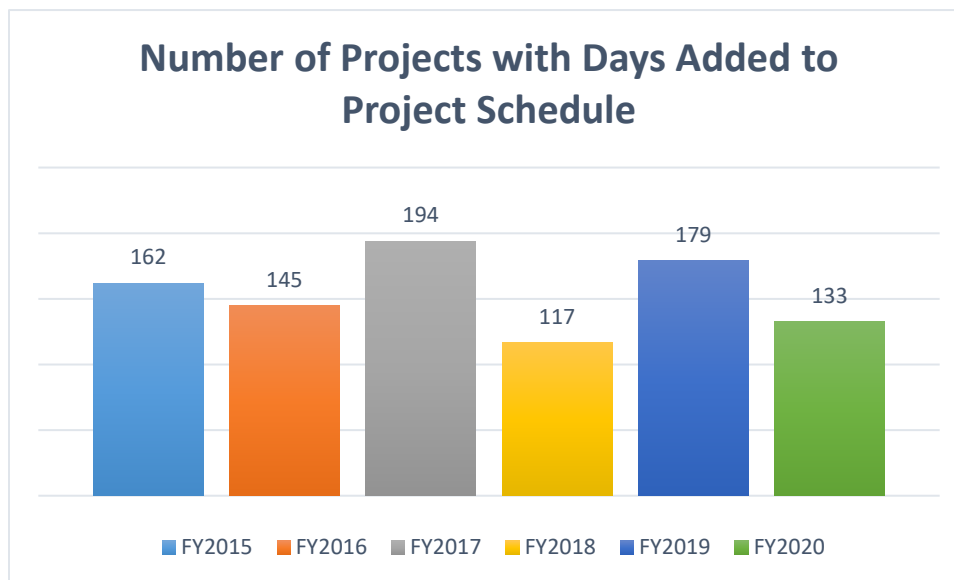
Likewise, days added to schedules are included at the Field Authorization/Change Order Proposal/JOC Modification level. As such, when reporting and analyzing the number and cost of change orders, FPS is reporting the number and cost of change orders as well as the number of Change Order Proposals, Field Authorizations and JOC Modifications which comprise the change orders and the value of change associated.

It should be noted the following data and analysis regarding change orders may not necessarily be representative of the total cost or number of all change orders to a project. Changes may have been authorized prior to the 2015-2017 biennium or since the start of the 2019-2021 biennium. Furthermore, a change order may add additional days to the project schedule at the same time that it is adding additional cost. Please see the appendix at the end of this report for Change Order Proposal, Field Authorization, JOC Modification, and schedule change details on a project by project level.

Projects that were not completed on schedule and the reason for the delay

It is not unusual for the completion date of a contract to be adjusted. Contract time can be added or removed with justification through a change order. The contract time of 133 projects were extended by change order during FY20. By comparison 179 projects were extended by change order during FY19 and 117 projects were extended by change order during FY18. FY17 saw 194 projects with time extensions and FY16 had 145 projects with time extensions. Please see Figure 8 for a comparison.

Figure 8 – Number of projects with days added to project schedule



To understand the reason for changes to a project schedule, recall that reasons are applied at the FA/COP/JOC Mod level.

For example, project number 14-157 for Columbia Basin College had executed change order number 4, composed of a Field Authorization, due to an error adding 30 days to the project schedule and a Change Order Proposal due to scope change adding 45 days to the project schedule. The total number of days added to this project was 75 days, but for two different reasons.

As such, the following analysis concerning reasons for delays to project schedules is based on the frequency of the reason occurring at the FA/COP/JOC Mod level and the associated days added to project schedules.

The most common reasons for days added to project schedules during the 19-21 biennium were latent conditions and scope changes. These reason codes appear most frequently on Field Authorizations and Change Order Proposals. This is consistent with previous biennia.

It should be noted that impacts due to COVID-19 have not yet been fully realized during this reporting period which contains data only through June 30, 2020. It is expected that additional delays or operational impacts may continue through the end of the pandemic. If that occurs additional time may need to be added prior to project closeout due to COVID-19.

Figure 9- Percentage of FAs/COPs/JOC Mods adding Days to Project Schedules based on Reason for Change – 19-21 biennium

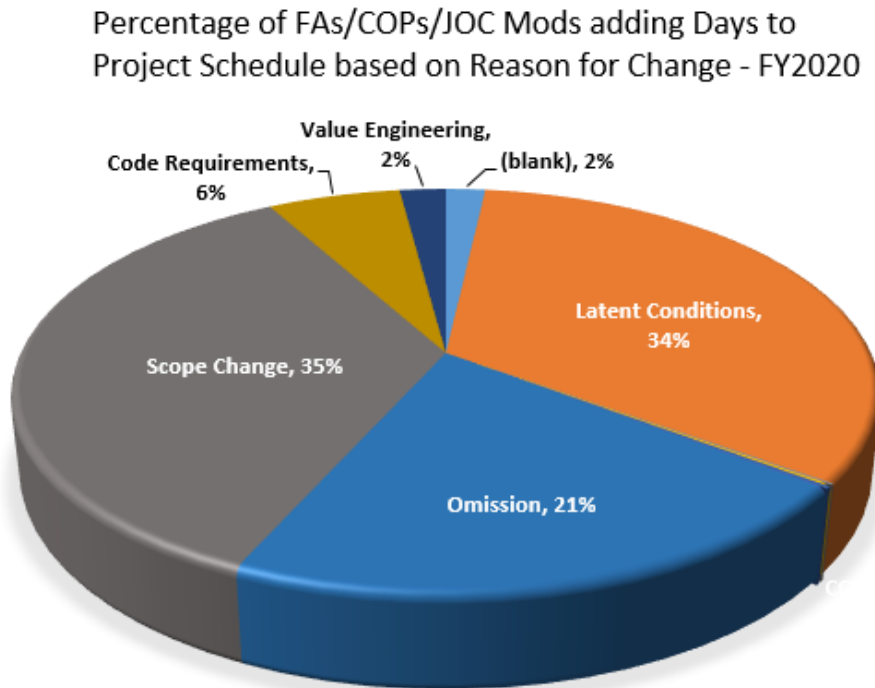


Figure 10- Percentage of FAs/COPs/JOC Mods adding Days to Project Schedules based on Reason for Change – 17-19 biennium

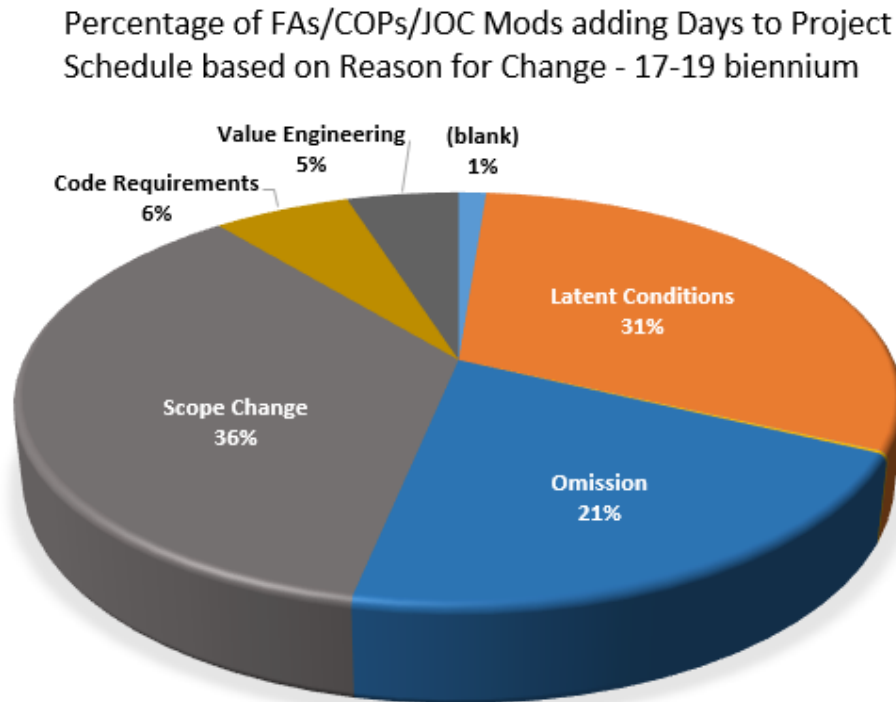
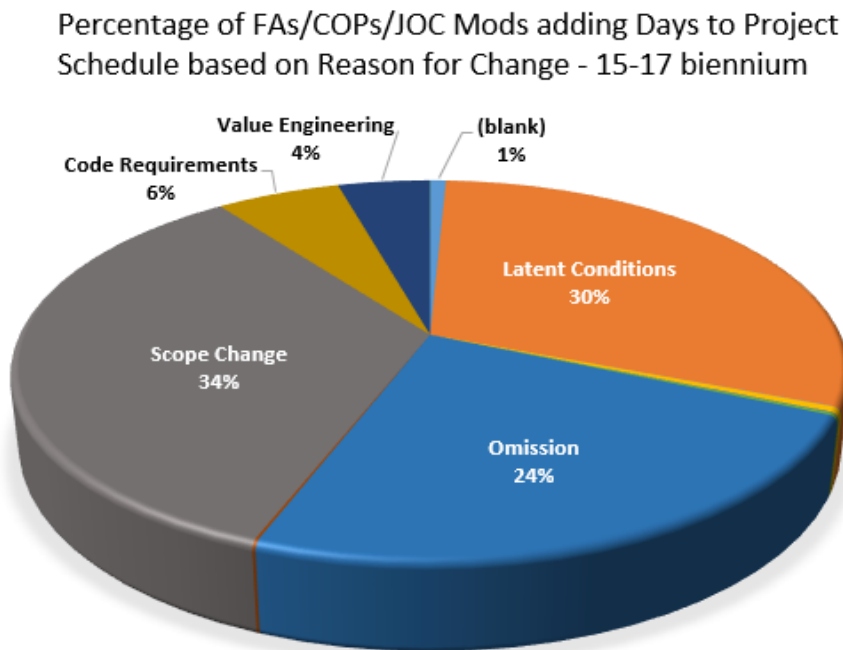
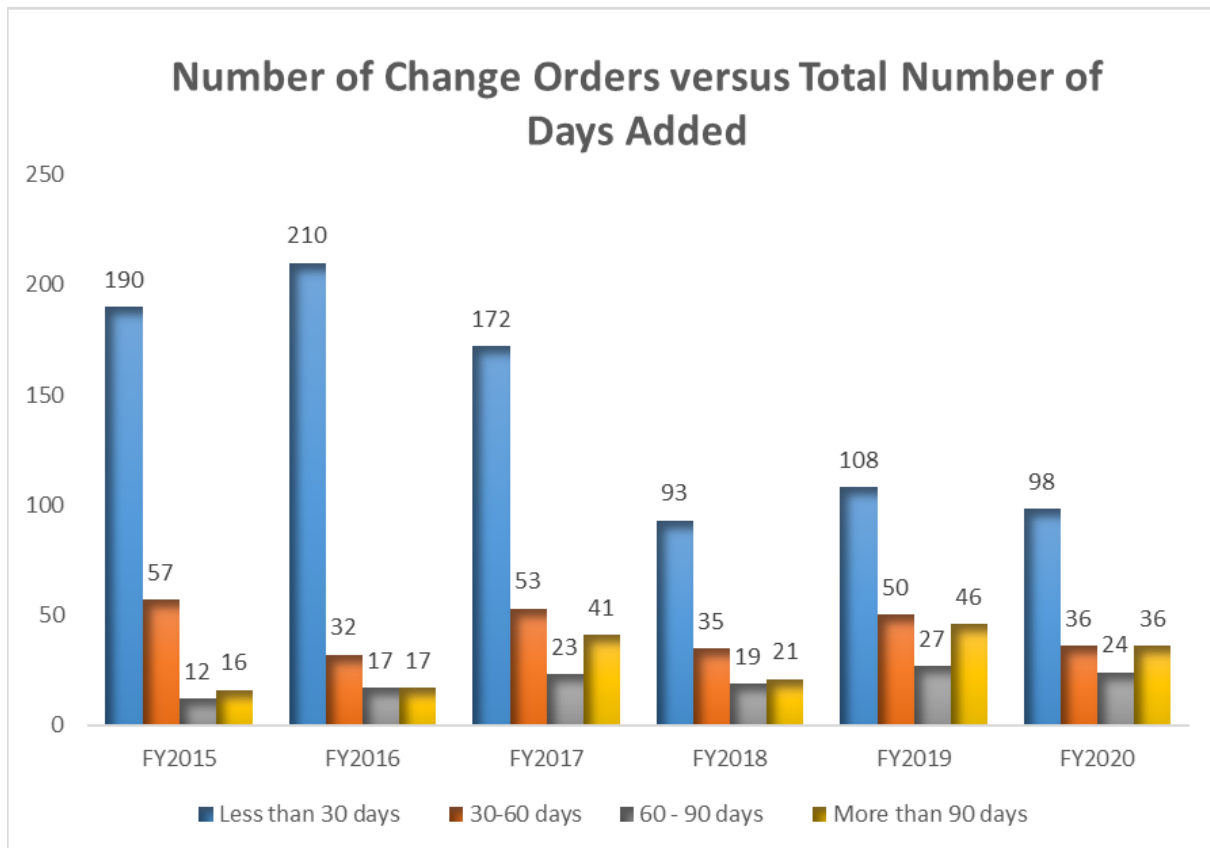


Figure 11 - Percentage of FAs/COPs/JOC Mods adding Days to Project Schedules based on Reason for Change – 15-17 biennium



In addition to the reason for days being added to project schedules, project managers must analyze the contractors schedule and verify that the number of days is justified. Returning to the previous example of project number 14-157 for Columbia Basin College, the total number of days added was 75 days as a result of one change order for two different reasons; latent conditions adding 30 days, and scope change adding 45 days.

Figure 12 – Number of Change Order versus Total Number of Days Added



From the 15-17 biennium to the 19-21 biennium there was a decrease of 47 percent in the number of Change Orders adding less than 30 days. However, there was an increase in the number of Change Orders from biennium to the next in the cases of Change Orders adding more than 30 days.

Figure 13 – Percent change in number of Change Orders adding days to project schedules across biennium

Fiscal Year	Less than 30 days	30-60 days	60 - 90 days	More than 90 days
FY2020	98	36	24	36
FY2019	108	50	27	46
FY2018	93	35	19	21
FY2017	172	53	23	41
FY2016	210	32	17	17
FY2015	190	57	12	16
Percent change	-47%	0%	15%	16%

In both the 15-17 and 17-19 biennium, latent conditions and scope changes were the reasons that occurred most frequently when days were added to project schedules, regardless of the number of days added. This has remained consistent in FY2020.

Figure 14 – Number of FAs/COPs/Mods by Reason – FY18-FY20

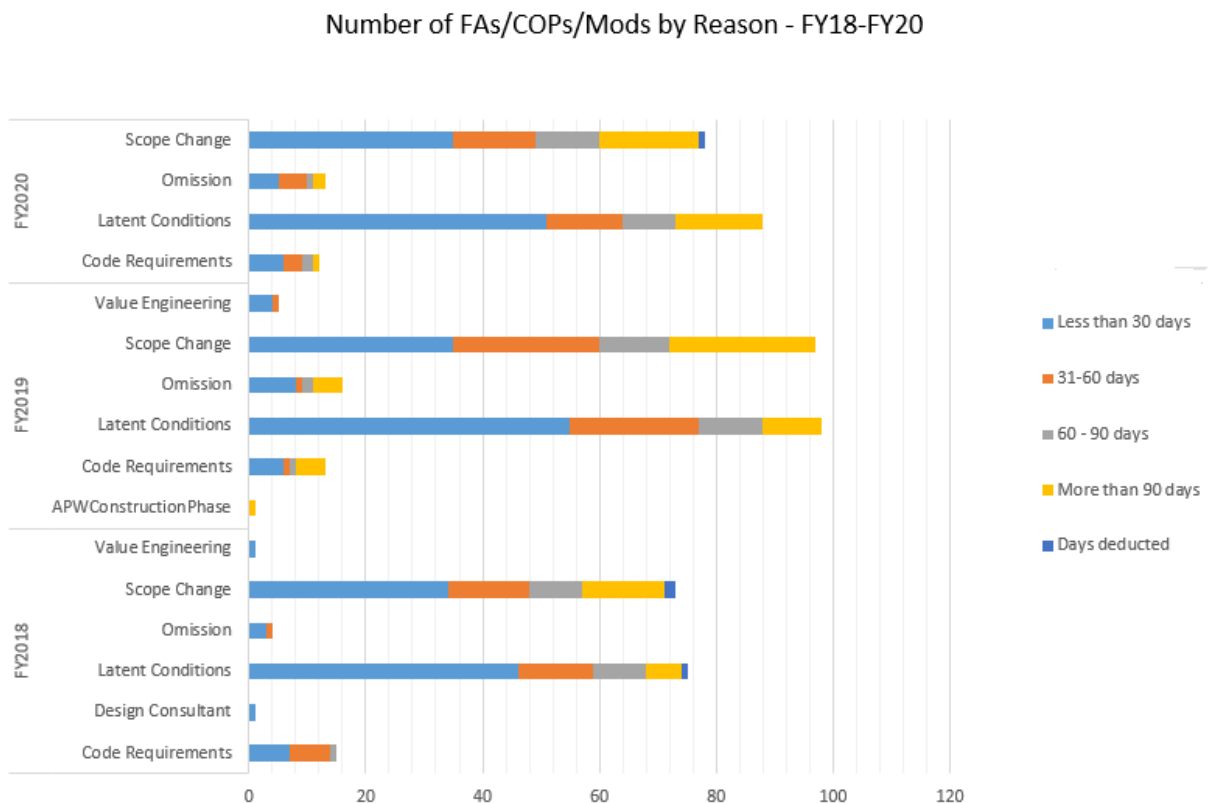
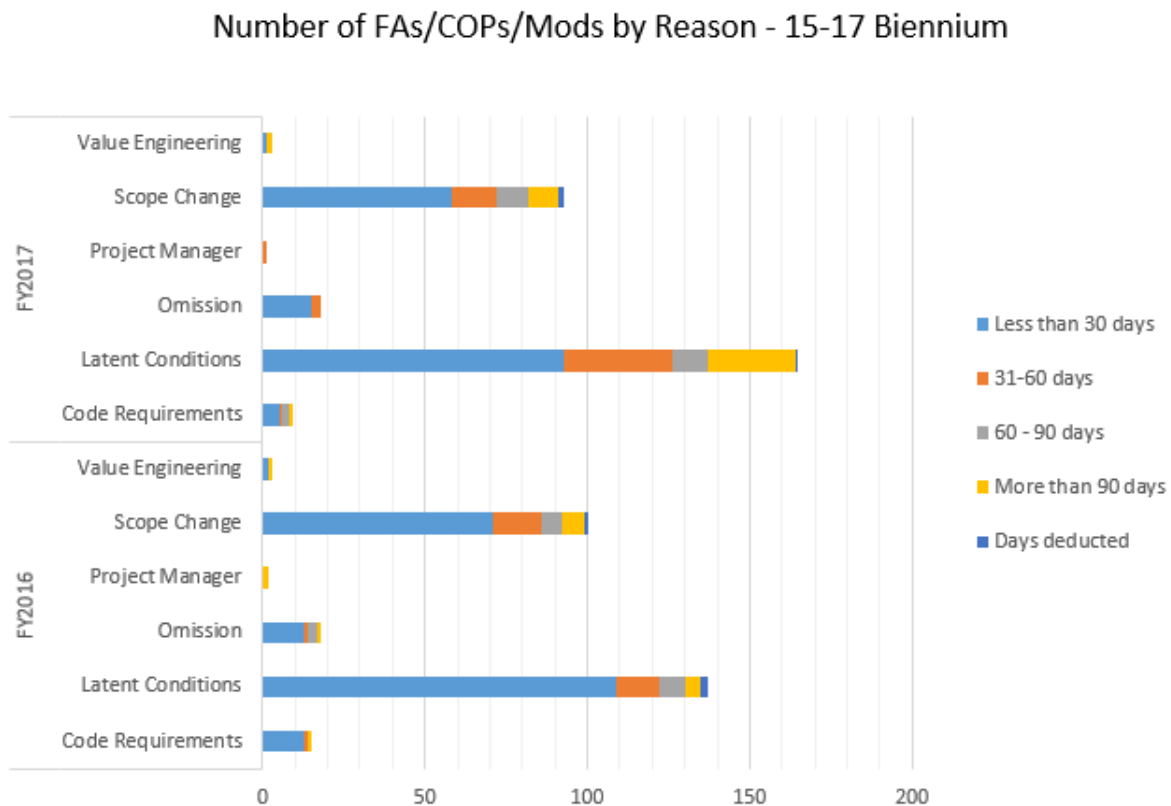


Figure 15 – Number of FAs/COPs/Mods by Reason – 15-17 biennium



The total number of Change Orders during the 15-17 biennium were 2,115 totaling \$99,685,014.07. In FY17-19, the total number of change orders decreased to 1,425 totaling \$114,382,583.41. In FY2020 there were 766 change orders totaling \$65,197,304.05. However, the number of change orders in FY2020 are expected to increase due to COVID-19 impacts that have not yet taken effect.

Additionally, please recall that the designation of Alternate Public Works (APW) Construction Phase. This is the change order reason that alters the initial contract to add the construction phase of alternative public works projects delivered under the Design-Build or Progressive Design-Build methodology. This reason appears in both the previous biennia:

- In 15-17 for the construction phase of the Helen Sommers Building with one “change order” in the amount of \$57,525,794.
- During the 17-19, the APW Construction Phase reason code appears four times for projects at the Community Colleges of Spokane, Clover Park Technical College, Bellevue College and Cascadia College for a total of \$73,892,656.
- During FY2020, the APW Construction Phase reason code appears twice for projects at the Capitol Campus Child Care Center and at Pattison MOA Facility for their expansion and rehabilitation.

Figure 16 – Number and cost of change orders

	# of Change Orders	Cost of Change	#APW Construction Phase	APW Construction Phase	Value of Work Authorized
FY2015	1076	\$ 28,953,746			\$ 332,663,776
FY2016	924	\$ 77,793,892	1	\$ 57,525,794	\$ 247,629,057
FY2017	1191	\$ 21,891,122			\$ 349,325,761
FY2018	590	\$ 63,576,979	3	\$ 440,623	\$ 145,724,070
FY2019	835	\$ 50,805,604	1	\$ 23,889,437	\$ 310,085,519
FY2020	766	\$ 65,197,304	2	\$ 433,879	\$ 376,361,971

Reasons and associated costs on change orders

Since executed change orders may have multiple causes or reasons as a result of the “bundling,” which was outlined earlier in this report, examining the frequency of the reason for change, totals are based on the frequency that the reason appears on Field Authorizations, Change Order Proposals and JOC Modifications. The APW Construction Phase reason code will be excluded from this analysis because change orders of this type are project specific.

Figure 17 – Cost of Change by Reason – FY2020

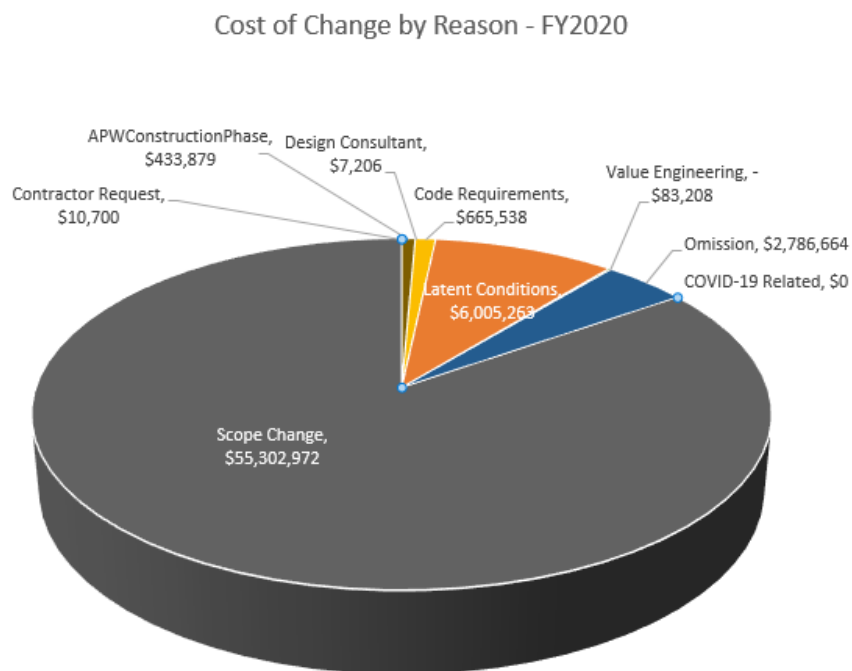
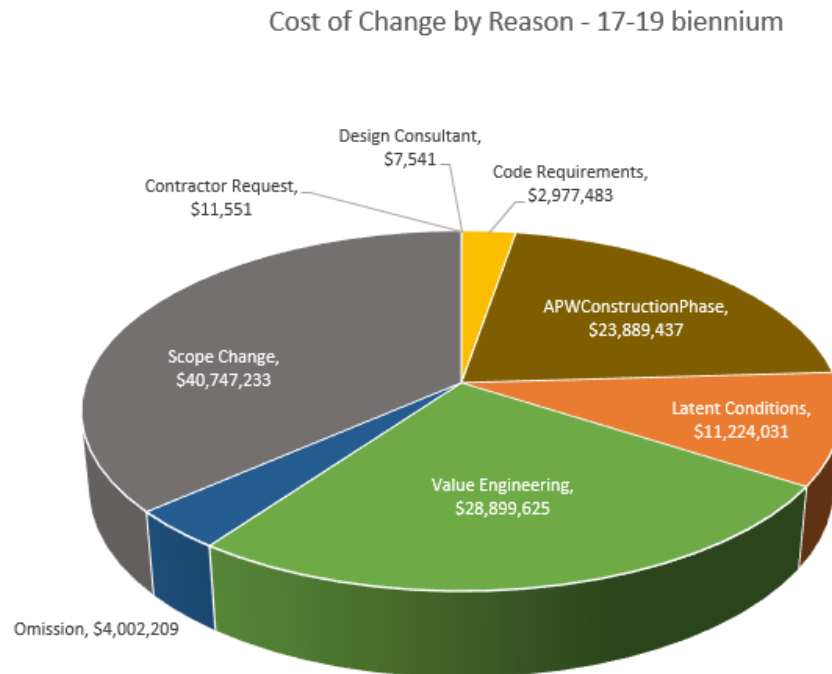


Figure 18 – Cost of Change by Reason -17-19 biennium

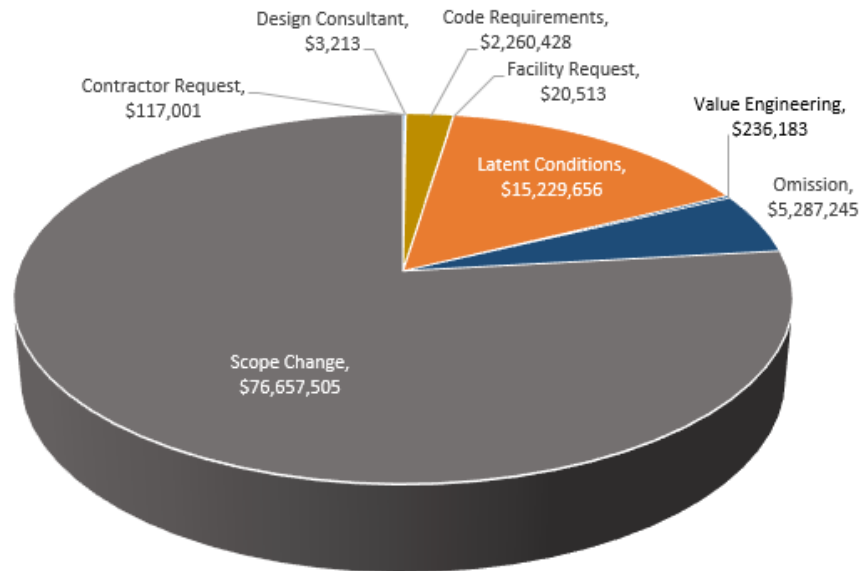


Scope change and latent conditions account for the majority of the costs associated with changes during all biennia. There were anomalies in FY17-19 due to budget restraints and the delay of budget approval in FY2018.

Scope change was a major factor in cost of change orders in FY2020, while change orders due to value engineering dramatically decreased. While the data is preliminary, this may be due to COVID-19 impacts during the latter half of the year. The full impact of COVID-19 will not be able to be assessed until the end of the biennium.

Figure 19 – Cost of Change by Reason -15-17 biennium

Cost of Change by Reason - 17-19 biennium



CONCLUSION OF ANALYSIS FOR REQUIRED METRICS

FY2020 is consistent with previous biennia, with each project manager having an average workload of 22 projects. Staffing levels increased from 26 in June 2019 to 30 in June 2020. There was an increase of 145 projects in FY2020 over the previous year with a value increase of \$63,137,122.

There was a decrease in the number of projects with additional days being added to project schedules from 179 in FY2019 to 133 in FY2020.

Scope change and latent conditions are the most common reasons for contract changes including additional days being added to project schedules.

DIVERSE BUSINESS INCLUSION

At the start of FY17, FPS implemented a software solution to streamline the data collection process in regards to diverse business inclusion participation. DES uses a web-based system, called B2GNow, to monitor participation of small, minority-, women- and veteran-owned businesses in our public works projects. The system allows DES to monitor how contractors are doing with voluntary inclusion plans in real time by tracking payment details by contracted vendors. B2GNow provides FPS with easily retrievable, current, verifiable information about the overall inclusion of diverse businesses on a contract by contract basis, as well as department participation. B2GNow is integrated with systems at the Office of Minority and Women's Business Enterprises (OMWBE), Department of Veterans Affairs

(DVA) and the Washington Electronic Business Solution (WEBS) system, ensuring that certification information is up to date.

FPS aligns our diverse business inclusion goals with those of Governor Inslee:

- Ten percent Minority Owned Business certified by the Washington State Office of Minority and Women Business Enterprises (MBE)
- Six percent Women Owned Business certified by the Washington State Office of Minority and Women Business Enterprises (WBE)
- Five percent Veteran Owned Business certified by the Washington State Department of Veterans Affairs (VA)
- Five percent Washington Small Businesses self-identified in the Washington Electronic Business Solution (WEBS) system (MWBE)

DES took input from stakeholders groups to determine the best way to account for each category and avoid double counting. Inclusion plans are submitted by contractors and they are responsible for meeting their goals. Therefore, when firms qualify for more than one category the contractor determines the category for inclusion. Some firms are not certified by the Office of Women and Minority Owned Businesses. If they are not certified, they may self-identify in WEBS and are counted as small businesses. Each company is counted only once.

Since implementation, payments of approximately \$1 billion, \$98 million have been reported as paid to vendors who have contracted directly with FPS for public works projects. Approximately \$326 million, or 30 percent of total payment, have been paid to a vendor holding at least one certification or registration type listed in the business inclusion goals.

While vendors set their own voluntary goals, Diversity Inclusion Plans are required to be submitted along with statements of qualifications for professional service agreements with fees greater than \$350,000 and bidding documents for construction contracts greater than \$1M. Diversity Inclusion Plans include utilization goals for each of the diverse business categories.

Figure 20 – Value of payments reported on public works contracts and professional service agreements with diverse or small business certifications.

	MBE	WBE	VA	SBE	MWBE	Not certified
FY20	\$7.12M	\$4.81M	\$12.02M	\$94.55M	\$4.54M	\$266.85M
FY19	\$13.62 M	\$4.58 M	\$1.06 M	\$91.13 M	\$1.35 M	\$218.23 M
FY18	\$11.80 M	\$7.28 M	\$6.81 M	\$22.68 M	\$.01 M	\$122.11 M
FY17	\$4.88 M	\$5.34 M	\$2.05 M	\$30.49 M	\$.0 M	\$164.73 M

Figure 21 – Represents the value of payments reported on public works contracts and professional service agreements with diverse or small business certifications.

Value of Contracts FY2020 (in millions of dollars)

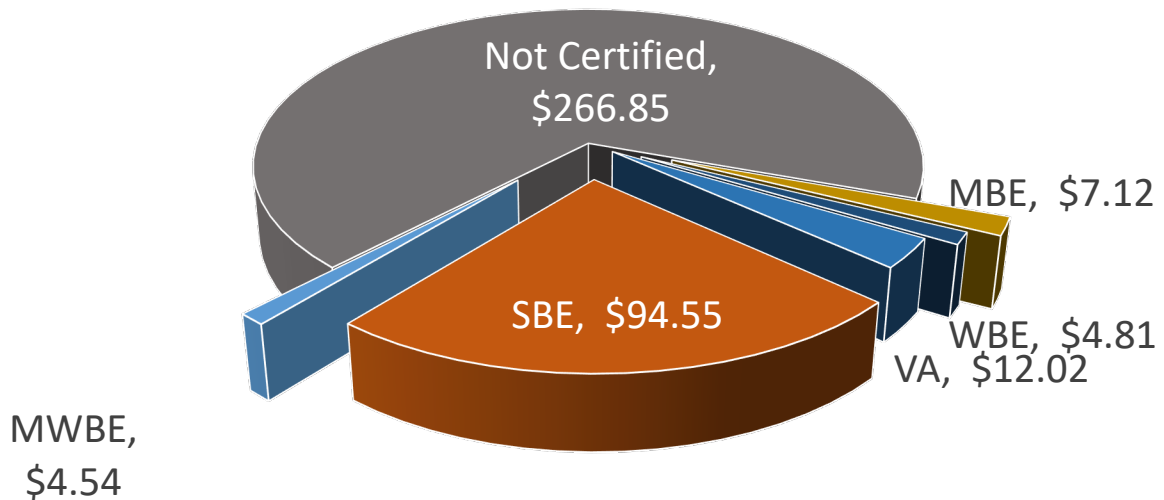


Figure 22 – Percentage of contracts awarded by type of business.

Type of Business by Value of Work FY 2020

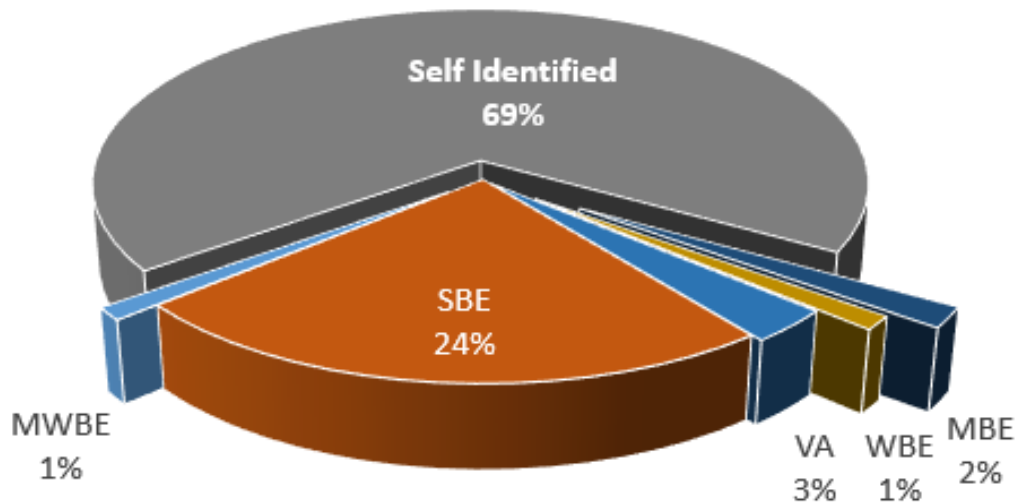


Figure 23 – Number of contracts and professional service agreements with diverse or small business certifications.

	MBE	WBE	VA	SBE	MWBE
FY20	207	188	70	1119	35
FY19	128	47	14	365	5
FY18	105	53	14	236	2
FY17	53	27	16	194	1

In October 2019, the Department of Enterprise Services received the National Association of Minority Contractors Public Agency of the Year Award for its work promoting small and diverse business participation in public works contracts.

CLAIMS AND DISPUTES

The Claims and Disputes section serves two purposes:

- Serve as a resource to verify cost estimates.
- Protect the state from contract claims and disputes.

The Cost Engineer reviews and verifies cost estimates on Change Order Proposals, Field Authorizations, and Job Order Contract Proposals. During this period, close to 400 Change Order Proposals, Field Authorizations and Job Order Contract work orders were reviewed against professional cost estimating references. This review revealed over \$275,000 of costs were not justified and were removed from consideration for inclusion in the contracts.

During FY2020 several potential claims were successfully resolved or dismissed. When COVID-19 hit Washington in late February, Claims and Disputes began working with the AG's office to review our Public Works contract and understand the implications to over 300 DES contracts that were in process at that time. Upon careful consideration of enforcement of the contract, FPS sent out letters to all of our contractors establishing our position to enforce our contract's Force Majeure clause with respect to the pandemic and offer no cost days to the contract schedule and no additional cost for delay or labor/materials due to the pandemic. Claims and Disputes logged all COVID-19 notices to contractors, the contract schedule adjustments, and executed COVID-19 job site safety plans submitted for each of the projects.

The Claims and Disputes Manager leads the effort to protect the state from contract claims and disputes by serving as an expert resource to project managers, through early intervention when disputes arise, through the consistent enforcement of contract provisions, and crafting timely documentation of the state's adherence to the contract and notice to the contractors of their responsibilities under the contract. This work unit works closely with the Attorney General's office to ensure that our actions can be supported in the event a contract goes to arbitration or litigation. Our average payout for contract claims is well under 2 percent. This is substantially below the national average for claims in 2018 of 7 percent².

² *Global Construction Disputes Report 2019* (The Netherlands: Arcadis 2019)

NOTABLE PROJECTS

E&AS Team at the Department of Enterprise Services

Olympia Transit Center Expansion

Architect: SRG Partnership
GCCM: Graham Construction
Client: Intercity Transit
Total Budget \$11 Million
Project 2017-935



The OTC Expansion project is a two story wood framed structure approximately 12,000 square feet and adds four additional bus bays to the downtown transit center. The main floor of the structure houses a ticketing and information counter, public restrooms and indoor waiting area for transit customers. The second floor is home to new bus driver breakrooms as well as staff conference rooms and open offices for Intercity operational support staff. The expansion will help meet current capacity demands at the transit center, improving customer service by providing better customer amenities. The new terminal is intended to provide transit riders with better customer amenities. It also will accommodate Greyhound's regional bus service, giving passengers more convenient access between regional and local transportation.

Architect: NAC Architects
Design/Build: Graham Construction
Client: Community Colleges of Spokane
Total Budget \$22,800,630

Main Building – South Wing Renovation

Architect: NAC Architects
Design/Build: Graham Construction
Client: Community Colleges of Spokane
Total Budget \$22,800,630
Project 2016-136

Awards: 2020 Inland Empire AGC – Best Commercial Renovation over \$10,000,000

The multi- phased \$22,800,000 Main Building South Wing Renovation project on the Spokane Community College campus includes the renovation of approximately 51,000 SF in the South Wing of Building 1 and an addition of approximately 7,000 SF. Main Building is the oldest building on campus. The project provided new spaces for students, faculty and staff with the ability to deliver a modern higher education experience.

The following are located in the renovated and new spaces:

- Arts and Sciences
- Public Safety
- Electronics
- Cosmetology
- Orlando's Restaurant and Bakery
- Business and Management
- Copy Center
- Dean's Suite
- Executive Administration Offices

The project also addressed the need to accommodate the new North Spokane Corridor (freeway) being developed on the west side of campus. The front door of campus shifted from the west side to the south side. The Main Building South Wing Renovation has provided a new front door to campus and aligns with the recently updated campus master plan.



Capital Planning & Project Delivery

Capitol Childcare Center

The planned 9,500 square foot building, located on the old IBM site on the corner of Maple Park and Capital Way, will serve between 75-100 children. This project will create a sustainable and state-of-the-art childcare center that prioritizes children, parents and educator needs. Once complete, this childcare center will also create a gateway from the community onto the Capital Campus while serving as a model for innovative and effective investments of state resources towards the health of our future generations.



DES has contracted with Walsh Construction and Mahlum Architects for this progressive design-build project. As of June 2020, the project is proceeding on schedule.

Building Envelope Repairs – Capitol Court

This project finished the design process and construction to repair the building envelope at Capitol Court. The project addressed water penetration into the buildings from exterior walls, supporting masonry, windows and doors. This work also included: cleaning and repairing the stone and masonry cracks, including spalling, repointing and the exfoliation and joints. Windows were restored and sealed as needed and sandstone exterior veneer repaired in areas where it was in danger of falling, receiving enhanced anchoring to ensure safe egress from the building after an earthquake.

Repairs included:

- Façade restoration, cleaning and repair of the historic sandstone masonry
- Improving the anchoring of the sandstone veneer
- Original wood windows were restored

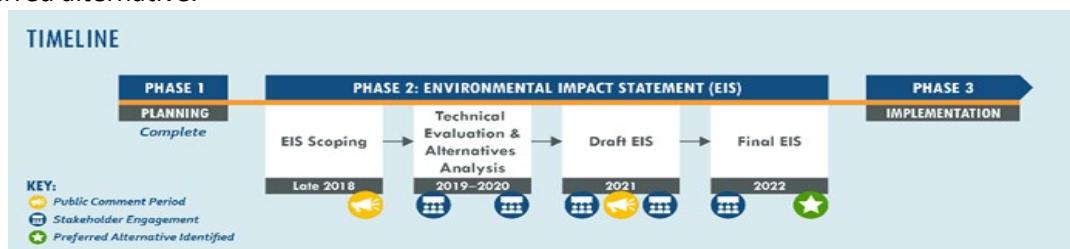


Capital Lake Long-Term Management Planning

The Capitol Lake – Deschutes Estuary includes the 260-acre Capitol Lake Basin located on the Washington State Capitol Campus. Capitol Lake was formed in 1951, following construction of the Fifth Avenue Dam. This waterbody is an important recreational resource and valued amenity; however, it suffers from numerous environmental issues. The expansive waterbody is currently closed to active public use and plagued by environmental issues, including the presence of invasive species and inadequate sediment management. These issues have resulted in violations of federal and state water-quality standards. Long-term management strategies and actions are needed.

In 2018, Enterprise Services was directed by the State Legislature to develop an Environmental Impact Statement (EIS) that evaluates alternatives for long-term management. Enterprise Services is now preparing an EIS to document the potential environmental impacts of various alternatives and determine how these alternatives meet the long-term management objectives. The primary alternatives to be evaluated include a managed lake, an estuary, a hybrid and a no-action alternative as required under the State Environmental Policy Act (SEPA).

The Draft EIS is on schedule to be released in June 2021, with the Final EIS expected in 2022. The Final EIS will evaluate and identify a preferred environmentally and economically sustainable long-term management alternative and a shared funding and governance framework for implementation of the preferred alternative.



East Plaza – Water Infiltration & Elevator Repairs

Rehabilitation of the East Plaza Garage began in 1996. This project, East Plaza Water Infiltration & Elevator Repairs Phase 5B is a continuation of these efforts. Phase 5A of the project, which rebuilt stair towers #1 and #8, was completed in the 2015-17 biennium. The remaining phases of the project (5C-5F) are expected to be completed in future biennia.



This project, phase 5B, repaired structural deficiencies, repaired and/or replaced mechanical and electrical systems, removed landscape features from the garage roof (plaza) and replaced the water-proof membrane (i.e. garage roof) in front of the Transportation and Employment Security Buildings. The project resolved known safety risks, reduced further water damage, and extended the lifespan of the facility. Construction was initiated on May 1, 2019 and was completed on schedule and budget.

The original December 2019 substantial completion milestone was based on the original (2017-19 biennium) \$10.491 million of scope authorized for this project and is complete.

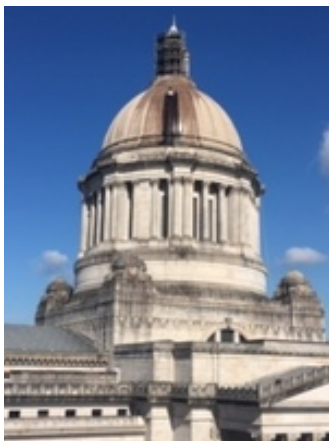
The legislature approved an additional \$2.44 million for the 2019-21 biennium. With the additional \$2.44 million authorized in the 2019-21 Legislative Session, there was additional work performed under the current GC/CM contract for electrical improvements. Substantial completion is scheduled for October 2020 to perform the additional work.

Roof Replacement- Cherberg and Insurance Buildings

This project included the demolition of all existing roofing systems, roof drains, insulation, skylights, and two small rooftop mechanical units. It replaced all skylights, hatches and equipment. This project installed new bidder-designed fall protection systems and new insulation, membrane roofing, metal siding, flashing, roof hatches and new bidder-designed skylights.

Legislative Building Exterior Preservation Cleaning

The project has proceeded into its next phase of work with exterior roof repairs. The dome and building cleaning was completed in 2018. This current phase of work started December 2020 after extensive investigative and design work.



The current project will replace the roofing at the west and east 4th floor parapet roofs, as well as install a new ventilated roof structure at the 7th floor around the Minor Domes. Additional work will incur below the NW Minor Dome, involving removing a piece of the concrete ceiling at the 6th floor to provide maintenance access and ventilation to the NW Minor Dome. This vent hole will also serve as an investigative piece for the architect to decipher the interior structural design of each Minor Dome to design a future ventilation system and fall restraint system.

The project is expecting substantial completion by May 2021.

AWARDS

2020 Inland Empire AGC – Best Commercial Renovation over \$10,000,000
Main Building – South Wing Renovation
Spokane WA



Owner: Community Colleges of Spokane
Project Management: Department of Enterprise Services FPS

2020 LEED Gold Certification
Cedar Hall
Bellingham WA



Owner: Whatcom Community College
Project Management: Department of Enterprise Services FPS

2020 Best Renovation Project over \$10 Million
Main Building South Wing Renovation
Spokane WA

Owner: Spokane Community College
Project Management: Department of Enterprise Services FPS

2019 Excellence in Masonry Awards from the Masonry Institute of Washington
(3rd Place in the Education Category)
Cascade Hall, Integrated Education Center H
Seattle WA

Owner: South Seattle College
Project Management: Department of Enterprise Services FPS

2019 Honor Award Nominee American Institute of Architects, Southwest Washington
College Instruction Center H
Bremerton WA

Owner: Olympic College
Project Management: Department of Enterprise Services FPS

2019 Honor Award Nominee American Institute of Architects, Southwest Washington
Cascade Hall, Integrated Education Center H
Seattle WA

Owner: South Seattle College
Project Management: Department of Enterprise Services FPS

2018 Northwest Construction Consumer Council
Distinguished Project Award for Public Project over \$10 Million
Student Housing Project (GC/CM)
Bellevue WA

Owner: Bellevue College
Project Management: Department of Enterprise Services FPS

2019 National DBIA Merit Award - Federal/County/State/Municipal
Helen Sommers Building
Olympia WA



Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

2018 NWCCC Distinguished Project Award for Best Public
Project over \$10M
Bellevue College
Bellevue WA



Owner: Bellevue College
Project Management: Department of Enterprise Services FPS

2018 Energy in Design Award American Institute of Architects, Seattle
Helen Sommers Building
Olympia WA

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***2018 AIA Seattle Honor Awards, Energy in Design Award
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***AIA Washington Civic Design Awards, Honor Award 2019
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***ASHRAE Puget Sound Technical Activities Committee (TAC) Awards, New Commercial Office Buildings
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***ASHRAE Region XI Technical Activities Committee (TAC) Awards, New Commercial Office Buildings
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***Washington Aggregates and Concrete Association Excellence in Concrete Construction Awards, Mid-Rise category runner-up
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

***Washington Aggregates and Concrete Association Excellence in Concrete Construction Awards, Sustainability and Resilience Award
Helen Sommers Building
Olympia WA***

Owner: Department of Enterprise Services
Project Management: Department of Enterprise Services FPS

APPENDIX

This appendix contains five sections; one for each of the previous five fiscal years.