



Missoula Public Works Facilities Master Plan

20 Year Space Needs Program and
Conceptual Master Plan

Report Date

April 19, 2021 – Revised June 30, 2021

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City of Missoula, Public Works &
Mobility Department

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MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN


Revision	Description	Author		Quality Check		Independent Review	
0	Final Report	Maley	04.19.21	Gerulat	04.21.21	Flager	04.21.21
1	Final Report	Maley	06.25.21	Gerulat	06.28.21	Flager	06.28.21

MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

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EXECUTIVE SUMMARY – THE SCOTT STREET PROJECT SITE

The detail provided within this report and appendixes document the entire planning process of this facilities master plan for the City of Missoula's Public Works Department. This document is intended to be a guide and assist in developing the next steps to making the City of Missoula's new Public Works Facility a reality. This conceptual plan outlines the major goals, strategies and needs while providing an attainable 21st century facility which will serve the City for decades to come. Timing for the completion of this facility is unknown and could potentially take 5 to 10 years to complete.

INTRODUCTION



The existing City owned Scott Street site is the desired location for new Public Works facilities. The property has enough site acreage to allow for departmental growth over the next 20 years. It is in an appropriate geographic location within the region for the City's long-term operations. The twenty-seven acres shown in this diagram represent the limits of this facilities master plan area

The team of MMW Architects, Stantec, DJ&A, and Jacobson Engineering were hired through a competitive Request for Proposals (RFP) process to assist the City in developing a Facilities Master Plan (FMP). This FMP quantitatively assists the City in determining their spatial needs and graphically illustrates the developed quantitative information in a conceptual master plan.

The core team of MMW and Stantec led an information gathering process with departmental staff and users and hosted a series of programming charrettes with these same individuals.

Charrette (n) a meeting in which all stakeholders in a project attempt to resolve conflicts and map solutions.

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During the charrettes, the team balanced the immediate (2020), short term (2030), and long term (2040) needs. Specifically, for this facility, the needs have been broken down into the following use types for vehicles, equipment, and staff:

- Heated Vehicle Storage
- Covered Storage
- Uncovered Storage
- Yard Storage
- Employee and Visitor Parking
- Administration and Operations (office space, meeting rooms, support function spaces)
- Fleet Maintenance and Shops

Public Works will be the primary user of the site, but the plan also explored additional facilities for other City departments that could be accommodated at Scott Street. The requirement of the RFP was to address the needs of the following Departments.

- Public Works (Administration, Utilities, Streets)
- Fleet Maintenance
- Parks
- Parking Commission

FACILITY MASTER PLAN FINDINGS

Total Determined Departmental Needs to 2040:

Department	2020	2030	2040
Public Works Administration	2,294 sf	3,356 sf	4,483 sf
Utilities	69,854 sf	142,168 sf	165,188 sf
Streets	354,973 sf	537,118 sf	604,915 sf
Fleet Maintenance	43,300 sf	67,919 sf	72,149 sf
Parks	245,674 sf	283,221 sf	301,041 sf
Parking Commission	8,135 sf	9,499 sf	9,898 sf
Total Department Needs	724,230 sf	1,043,281 sf	1,157,674 sf
Total (acres)	16.6 ac	24.0 ac	26.6 ac
Scott Street (total acres owned by the City)	27.0 ac*	27.0 ac*	27.0 ac*
Difference (needs vs. owned)	10.4 acres	3.0 acres	.4 acres

** This number is estimated based on best aerial and GIS information available. A full site survey was not included within this study.*

The table above shows the total future needs of these departments relative to current city owned property. Several conceptual master plans were developed showing the potential benefits if the City were to acquire the parcels to the west. The recommendations within plan utilize current City owned property.

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The appendix includes the estimated 2040 space needs detail for each of the departments listed in the table above. Scott Street is not the ideal location for each user group identified, or portions of their operation. Additional city-wide goals and plans are needed to be incorporated within this property.

- Parks and Parking Commission determined that Scott Street was not an ideal location for their operations. However, a small amount of space was retained for Parks vehicle maintenance adjacent to fleet maintenance.
- Streets determined that the majority (2/3) of their bulk materials storage could be reduced and/or stored offsite at the Wastewater Treatment Plant (WWTP) to improve operational efficiency.
- Two roadway improvements are required to improve transportation mobility.
- Employee parking was expanded to serve a potentially larger administration building along with the planned residential neighborhood to the north.

Revised Departmental Needs (Scott Street Specific) to 2040:

Department		2030	2040
Public Works Administration		3,356 sf	4,483 sf
Utilities		142,168 sf	165,188 sf
Streets		281,750 sf	322,278 sf
Fleet Maintenance		67,919 sf	72,149 sf
Parks		5,600 sf	6,720 sf
Site		295,216	335,591
Total Department Needs		796,009 sf	906,409 sf
Additional non-department needs (new collector street through site and new 60 ft residential road through site)		205,273 sf	205,273 sf
Additional parking needs		60,000 sf (+/-)	60,000 sf (+/-)
TOTAL (sf)		1,061,282 sf	1,086,472 sf
Total (acres)		24.4 ac	24.9 ac
Scott Street (total acres owned by the City)		27.0 ac*	27.0 ac*
Difference (needs vs. owned)		2.6	2.0

* This number is estimated based on best aerial and GIS information available. A full site survey was not included within this study.

The site factor in the table above accounts for the additional site circulation, setbacks, stormwater detention and landscaping. These numbers will be refined in the future as the master plan concept is developed further.

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Overall, this site that will enable Missoula Public Works and Fleet Maintenance to expand over time as larger demands for their services increase. Its location aligns with much of the city's projected northern growth which will aid in operational efficiency. Additionally, the wastewater treatment plant is very close and will be used daily by both Streets and Utilities.

CONCEPTUAL SITE PLAN

Comingling a new residential development and the new public works facility

The conceptual plan supports other projects and land use objectives in this region of the City. The City recently purchased approximately 19 acres of the former White Pine and Sash site, with the intent to develop housing on the eastern half of the property. The western half was not remediated to residential standards, but is suitable for commercial or industrial use, and was therefore considered for the new Public Works facility. Great care has been taken to master plan for this adjacency between a public works operation and residential development. A new 60 ft Right-of-Way (ROW) residential street will buffer both the south and west property lines between the Scott Street site and the residential development. The preferred master plan illustrates a 50 ft wide landscape buffer provided along western edge of the new residential street. This buffer is intended to be heavily planted with a mix of evergreen and deciduous trees to provide a vertical noise and visual screening buffer to the residents to the east. This area has the potential to be a pleasant open space amenity to both the residents and City staff.

The operations functions (heated storage and covered storage for vehicles and equipment) are located west of the landscape buffer. All access into this area will occur from the south and west, with no access from the east thus minimizing noise and light pollution to the residents. Lastly the structures themselves will also help shield and contain all noise and light activity within the site due to normal public works operations.

These facilities must be accessible at all times of the day or night by large trucks and heavy equipment. Our master planning goal was to keep these vehicles and their functions (bright headlights, backing alarms, etc.) away from surrounding residences to avoid being a constant nuisance.

The Administration and Operations building is essentially an office building. The public will come to this site, but only need to access this building. The master plan sites this building parallel to Scott Street to be the public facing entity of the campus, while at the same time, limiting public access deeper into the site. Because of the functional nature of this site, no general public access will be allowed deeper into the facility. Non-public areas are intended to be fenced with restricted access for City vehicles only.

The developed conceptual site plan is intended to be a planning tool for the City. This plan is not a final master plan but does illustrate how the 2040 space needs program of Streets, Administration, Parks, Utilities, external partnerships and Fleet Maintenance could be implemented within the City's existing site. As the adjacent sites are further developed, namely the residential development to the north and the triangle parcel to the west, there will need to be flexibility within this plan to accommodate these developments. It is desired to have shared facilities with each of these developments (shared parking with the residential development, and potentially Fuel and Wash with Mountain Line if they elect to pursue the west triangle for their new home).

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The driving needs of this master plan include the following elements:

Streets

Streets' staff is projected to grow from 51 employees currently to 84 by 2040. Their functional needs include the following:

- Streets Maintenance which includes a wood shop, traffic control electronics shop, communications shop, radio equipment storage, sign shop, traffic services shop, paint shop, and heated bulk materials storage.
- Covered Equipment Storage includes small equipment (skid steers, crack sealer, mastic trailers), medium sized vehicles (rollers and pothole patch trucks), large vehicles (loader, tandem dump trucks with trailers, water truck, deicing/plow trucks, garbage truck), and extra large (road graders, backhoe and snow blower).
- The existing sand shed is planned to be relocated from its current location.
- Heated vehicle storage includes small, medium, large, and extra large sized vehicles and equipment.
- Additional covered/enclosed storage includes traffic poles, traffic barricades, asphalt millings, asphalt cleanout, and the asphalt recycler.
- Uncovered storage includes concrete and asphalt debris and a sand salt processing area. The city currently mixes its own solid de-icing materials from bulk deliveries of sand and salt products.

Administration

A new 2 story Administration building with the option to build 1 or 2 additional stories for increased office space for other City departments or possibly other public entities. This building will serve as the front door to the campus and therefore fronts Scott Street. The multi-story structure will aid in the urban context of Scott Street while shielding the employee parking and the light industrial campus beyond. The following are located within this building on the first 2 floors:

- All offices
- Meeting/training rooms
- Crew rooms
- Locker rooms
- Bunk rooms for crews during inclement weather events
- Kitchen and break room

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Parks

Parks' needs at Scott Street are fairly small since Scott Street is not the ideal location for their operations. A small amount of heated vehicle and covered storage has been dedicated to Parks for storage of seasonal equipment. The bulk of their summer equipment is maintained by Fleet Maintenance during the winter months and will be cycled through Scott Street based on Fleet's maintenance schedule.

Utilities

Utilities' needs are similar to Streets in the need for expanded shops, heated storage, and covered storage.

- Secured equipment storage for stormwater sampling and testing equipment, coolers, and gear
- A mud room for hosing down gear, boots, tools, and equipment
- Equipment storage for small tools (hand tools, cones, signage, stormwater BMPS)
- Metal shop (welder, grinder, cut-off saw, metal storage)
- Warehouse for meters, pumps, SCADA equipment. Within this warehouse, a bridge or gantry crane is required to load these items onto their trucks.
- Heated vehicle storage for the Vac trucks, service and TV vans, Jet trucks/trailers, service trucks and people haulers, the water wagon, and materials/products required for utility repair work.
- Their current basement storage at the West Broadway site (10,000 sf) will be relocated to Scott Street which will free up this space for other use by the city.

External Partnerships

MRL requested some additional employee parking near/adjacent to their maintenance shop. This is graphically shown on the south side of the new 90ft collector road.

Mountain Line and UDASH are currently looking seriously at developing the 6 acre west triangle for their administration, operations, and maintenance facility for their buses. The west triangle is actually 2 parcels, owned by MRL and Republic. Each have expressed interest in selling these parcels. There is strong interest from Mountain Line to acquire these properties and develop a multi-level structure. Sharing fueling and washing facilities with Public Works has strong potential and will avoid constructing duplicate facilities. Ownership of these facilities is TBD and will need to be worked out as each of these master plans progress. These facilities would be located between each site while also providing a connection to Rogers Street to the north.

Fleet Maintenance

Fleet currently shares the existing facility with Streets and Utilities. They use this building for heated storage. Their existing shops are far undersized based on the quantity and variation of vehicles and

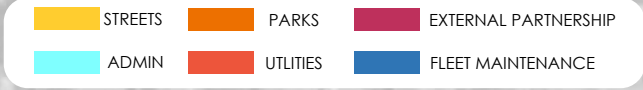
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equipment maintained. Once new heated storage is constructed, Fleet can repurpose the entire existing facility footprint and expand their fleet shops and parts storage needs to meet the increased demands. Both Streets and Utilities are projecting 25% to 35% growth needs in their vehicles and equipment, as is Parks. It's safe to assume that all City departments will also have growth in their fleet and equipment, thus the justification for Fleet's full need of this existing building. This plan prioritizes expansion of Fleet within this existing footprint vs. building a new Fleet Maintenance facility to reduce the projects overall costs and the useful life remaining within this structure.

New I-90 heavy truck access

With the growth in residential development occurring in the neighborhood, Public Works has identified a need to provide a new truck route to and from Interstate 90 and the landfill. This new truck route will provide a by-pass around the residential neighborhoods to the north and east. This new 90 ft. right-of-way (ROW) collector street will align with Turner Street and run westerly along the MRL tracks property line thus diverting truck traffic away from Scott Street. Removal of these trucks from Scott Street will improve the air and noise quality to the residences, while also reducing potential conflicts between trucks, public vehicles, cyclists, and pedestrians.





SCALE 1" = 50' - 0'



MISSOULA, MT

Stantec Project Number: 227046390



15 JUNE 2021

PROJECT PHASING SUMMARY

Master plans are intended to be a guide to aid in capital improvements planning over time. This preferred conceptual master plan will most likely be phased over time. The diagrams provided are not intended to be final master plans but used as a guide to aid in future planning and implementation decisions.

Funding and constructing an entire facility of this scale is no small task, and as such has been designed to allow the City to implement the master plan over time in phased increments. Ideally, each phase would allow for some amount of growth of staff, vehicles, and equipment within that primary scope of work. Smaller sub-phases within that period could certainly be possible.

The primary phases within this task are demonstrated by the following diagram and table. Per the diagram, much of the work to make this site fully operation is required within phase 1.

The concept plan can be phased and constructed over time if full implementation of the master plan is not achievable with the available funding when the time comes to build this facility.

Phase 1:

- Construct the Administration building
- Construct the large, heated vehicle storage building (to also be used as shops until vehicle and equipment growth requires this space)
- Relocate the sand/salt shed
- Install all required underground utilities
- Complete rough grading and stormwater quality improvements
- Construct covered storage along the perimeter of the site.
- Construct the 90ft Collector Road (Phase 1A)

Phase 2:

- Construct the Streets and Utilities shops
- Remodel Fleet Maintenance
- Construct Fuel and Wash (if not already completed by Mountain Line)

Phase 3:

- Construct small vehicle/equipment heated storage (could be constructed in modules over time as needs increase)

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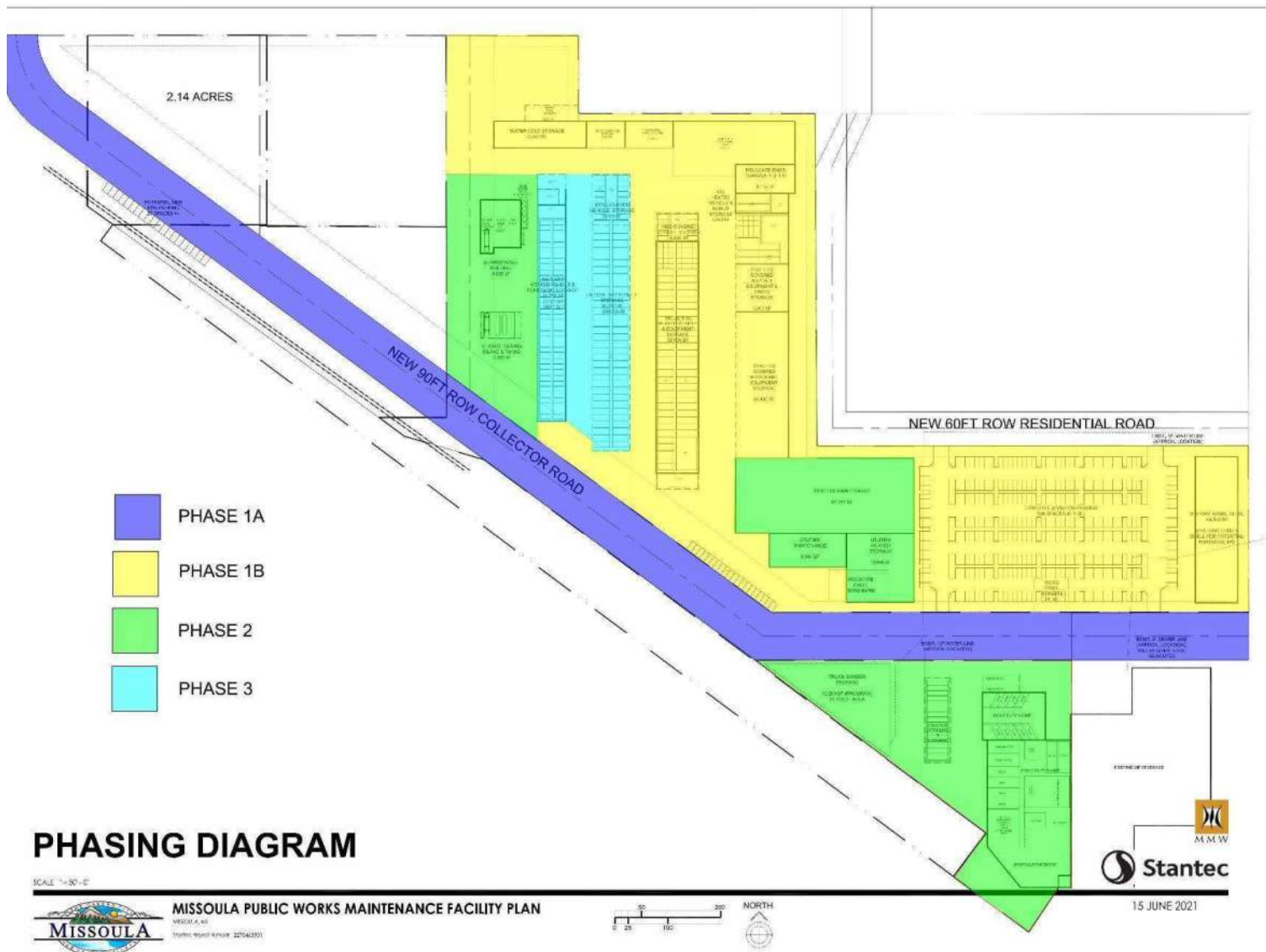
- Construct medium/large vehicle covered storage (could be constructed in modules over time as needs increase)

Phase 1A (all numbers have been rounded to nearest 50 sf):	
Administration and Operations Building	44,000 sf (minimum)
Employee Parking (+ Shared Parking with New Residential + Additional Parking for Additional Admin Building Space)	326 spaces
Streets Covered Equipment and Asphalt Equipment Storage	36,400 sf
Small, Large, and X Large Heated Vehicle Equipment Storage	35,000 sf
Streets XXL Heated Vehicle Storage	3,750 sf
Sand and Salt Storage (relocated)	6,150 sf
Streets Traffic Pole Storage, Traffic Barricade Storage, Concrete and Asphalt Debris Storage	11,250 sf
Water Cold Storage	8,750 sf
Site and Roadway Work	QTY TBD based on street sections

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Phase 2	
Utilities Heated Storage	16,650 sf
Utilities Maintenance	9,350 sf
Streets Maintenance	47,750 sf
Fleet Maintenance	51,300 sf (remodel)
Fuel and Wash Facilities	21,000 to 23,000 sf
Phase 3	
Large Covered Vehicle Storage	30,250 sf
SM and MED Heated Vehicle and Equipment Storage	24,700 sf

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POTENTIAL PARTNERSHIPS

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The City of Missoula, in support of their goal to reconfigure and right-size their yards at Scott Street, desired to approach other entities and explore options for a combined effort that would benefit all parties, either by sharing facilities, co-locating, and reconfiguring land ownership to better address each property owners long term goals.

The design team and City steering group identified the public, semi-public and private entities to approach and determine if they were interested in pursuing a collaborative approach. The following non-city entities were contacted:

Public / Semi-public Agencies

- Missoula County Public Works Department
- Missoula Urban Transportation District (MUTD)
- Montana Department of Transportation (MDOT)

Private Entities

- Montana Rail Link (MRL)
- Beach Transportation
- Republic Services
- Zip Beverage

Through a series of meetings, it was determined that MUTD was interested in co-locating. MDOT was interested, but the timing did not work for them. County Public Works preferred their existing location. Among the private entities, Republic Services and MRL indicated that they were willing to entertain specific proposals as plans developed.

PLANNING DURING THE PANDEMIC

This study was conducted in 2020 during the COVID-19 Pandemic and completed in June of 2021. This was a challenge that no one was prepared for; travel was eliminated, in person face to face meetings were not an option, and meeting materials and content had to be discussed virtually. Despite the hardships, the project team (City stakeholders, MMW Architects, and Stantec) worked collaboratively to identify current and future growth needs. These results are further discussed in each sequential chapter, including the preferred conceptual master plan.

COST ESTIMATE

If desired by the City, a master plan cost estimate could be provided by the MMW/Stantec Team. This was not a requirement of the RFP. At this level of design, the master plan would provide a range of costs. It's critical here to emphasize a range of costs is attainable and would follow the Association for the Advancement of Cost Engineering (AACE) standards for a Class 5 Estimate.

"CLASS 5 Cost Estimate – Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. Typically, engineering is from 2% to 10% complete. They are often prepared for strategic planning purposes, market studies, assessment of viability, project location studies, and long-range capital planning. Virtually all Class 5 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric techniques. Expected accuracy ranges are from –20% to –50% on the low side and +30% to 100% on the high side, depending on technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 1 hr or less to perhaps more than 200 hours may be spent preparing the estimate based on the project and estimating methodology."

- From, AACE International Recommended Practices and Standards

CONCLUSIONS

Demographics

The City of Missoula's population is expected to grow by over 33,000 people from 2020 to 2050. This is a 42% increase and will require the City to invest in its supporting infrastructure and facilities to support this growth. Planning and prioritizing these investments will need to be balanced with all the additional projects and needs planned but delaying implementation will have negative effects in the future.

Time and Planning

This project will take time to complete. The overall size and scope of this facility will be a significant investment for the City of Missoula. The entire Scott Street site is approximately 27 acres, all of which are affected by this master plan. Land acquisition from MRL will be necessary to complete the full collector road.

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Proposed next steps are addressed in Chapter 5, which include further investigation (geotechnical engineering and environmental testing at a minimum) and completing a full site survey in the near future at a minimum. Each of these will be required and will aid in better defining the project's cost estimate.

Demands for Additional Projects

This study began to identify additional required projects that the City will need to plan for and finance. The scope of this project is not solely limited to the Scott Street site. Much of the necessary bulk storage functions are planned to be moved to the wastewater treatment plant. Streets needs 3.25 acres of storage. The area of need could be reduced if large concrete containment facilities were constructed to densify storage and containment. This will need to be coordinated with future improvement and/or expansion plans for that facility.

Parks also has significant needs and would prefer to be in multiple locations throughout the City to better align with their daily and seasonal workflow. Their 100 Hickory site is at risk of no longer being available in the near future. Their 2040 program needs are close to an additional 7 acres (300,000 sf) total. Within this total is 50,250 sf of new constructed buildings and covered storage.

Outside Influences

Commodity prices continue to escalate quickly which is making construction projects more expensive. The full effects of COVID-19 are now being felt seriously in the construction industry. Over the past 6 months cement, copper, plastics, and wood have all increased significantly. This does not appear to be a temporary problem because of the global decline in manufacturing and shipping over the past year. Natural disasters have also played a major role in the global supply disruption including severe flooding, earthquakes, and forest fires.

1.0 FACILITY NEEDS OVERVIEW

This section summarizes the facility space needs programming process and results.

1.1 DEPARTMENT ORGANIZATION AND PROJECT APPROACH

The City of Missoula's Public Works Department is organized into the following work groups with their associated existing, 2030, and 2040 facilities needs at Scott Street and offsite. The offsite needs are summarized in the Program Detail within the Appendix. The tables below represent the current provided 2020 spaces throughout the City, and the growth needs specifically located at the new Scott Street Facility.

1.1.1 Administration (Administration and City Engineering)

2020	2030	2040
2,294 sf	3,356 sf	4,483 sf
% Increase from 2020	146.3%	195.4%

The bulk of this need is within the new administration and operations facility and the associated employee parking. The Director and an administrative assistant will remain at City Hall. City Engineering and all other associated staff will be moved to the Scott Street site.

1.1.2 Utilities (Stormwater, Collections, and Water)

2020	2030	2040
69,854 sf	142,168 sf	165,188 sf
% Increase from 2020	203.5%	236.5%

The bulk of Utilities' staff, vehicles, equipment, and storage will be located at the Scott Street site. Their staff is expected to grow from 64 to 149, with the bulk of it happening in the next 10 years. This is the largest department within Public Works.

1.1.3 Streets (Streets, Comm Shop, Traffic Services)

2020	2030	2040
354,973 sf	281,750 sf	322,278 sf
% Increase from 2020	79.4%	90.8%

Although relatively small in staff (11 people currently, 15 planned in 2040), Streets has a large footprint because of their bulk storage needs. During this study, it was determined that the majority of bulk storage would be stored off site at the Wastewater Treatment Plant. All employees, vehicles, equipment, and shops will be located at Scott Street.

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1.1.4 Additional Departments

This study also included two additional City Departments, Parks and Fleet Maintenance, in the planning and programming efforts. These Departments were included because of their similar needs for fleet and equipment storage, crew and operations spaces, shops and maintenance.

1.1.4.1 Parks

The Scott Street Location is not the ideal location to address Parks' needs and long-term growth strategies, except winter equipment storage that needs to be maintained (by Fleet Maintenance). Ideally, Parks would like to have smaller facilities, located throughout the City's boundaries for better adjacencies to the property's they maintain. Due to Scott's street distance from many of these facilities, unnecessary operational costs would be incurred daily due to the shuttling of staff and equipment to their daily workplaces. A separate, similar study is suggested ~~for~~ solely for Parks. The detail of these needs can be found in the space needs programming document.

2020	2030	2040
245,674 sf	283,221 sf	301,041 sf
% Increase from 2020	115.3%	122.5%

1.1.4.2 Fleet Maintenance

This function currently exists at Scott Street, but does not have full access to the entire building footprint within its facility. Much of the facility is also used by Public Works for heated storage and shops. Once the space within this facility is vacated by Public Works, Fleet Maintenance would have enough space to grow into the entire building footprint to meets its growth needs. Interior remodeling of the facility will be required along with new/replacement equipment. Fleet's growth needs through 2040 are indicated in the space needs program total and are included in the overall total for the campus. The detail of these needs can be found in the space needs programming document.

2020	2030	2040
43,300 sf	67,919 sf	72,149 sf
% Increase from 2020	156.9%	166.2%

1.1.4.3 Parking Commission

This function currently lives downtown within City Hall and needs to remain in a downtown location. They interact with the public daily. Primarily, they enforce the parking rules and regulations downtown and removing this function from downtown will cause unnecessary inefficiencies to both the City and its citizens. Parking Commission's overall needs are documented and include the following. The detail of these needs can be found in the space needs programming document.

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2020	2030	2040
8,135 sf	9,499 sf	9,898 sf
% Increase from 2020	116.8%	121.7%

1.2 POPULATION DEMOGRAPHICS & CITY SERVICES

The City has long desired to identify facilities space needs for its public works department in order to grow and meet the growing needs within the City. Public Works provides valuable services to its citizens. Missoula's current permanent resident population based on the 2020 census is 78,600 (rounded). The City is expecting a several decades of significant population growth based on recent demographic analysis.

2020	2030	2040
89,650 (rounded) —	89,650 (rounded) 114% growth	100,700 (rounded) 112% growth from 2030 128% growth from 2040

Current Public Works operations are challenged by insufficient facility needs. This is reflected by the actual percentage of departmental growth needs vs. the projected population growth. When planning new Service Center facilities, the key is to identify current deficiencies (often due to lack of resources), while planning for the future based on the number of trucks and equipment needed to increase services to the community. During our programming charrettes, we inquired about potential new city services that could be provided in the future. The staff firmly thought that the current services provided will be the services of the future, thus no additional departments would be required.

2.0 DESIGN 2 THRIVE (D2T)

2.1 D2T METHODOLOGY

Stantec believes in a process we call Design2Thrive (D2T) to start all Facility Master Plans and building/facilities design projects. D2T also uses the charrette process to facilitate [a](#) goals and visioning with project key stakeholders. The process uses our six principles of sustainability— **elements** (carbon, air, water), **resilience, ecosystems, materials, wellbeing, and vision**—to create a holistic approach to sustainability goal setting that equally values environmental, social, and economic factors. The process is imperative at the beginning of these projects to aid in providing a road map for project success. The goals, vision, and metrics established often live through the life of the project. These goals are created by the stakeholders. Our job is to facilitate the discussion and document its results.

In July 2020, we met with the stakeholder group to collectively determine qualitative and quantitative measures of success for each of the six principles to track through the duration of the project. At the end of the charrette, the nineteen stakeholders virtually voted on their top priorities for the project. The complete detail of this session is included within the Appendix, which includes goals, metrics, strategies, discussion notes, and program consideration. These goals have not only been a great roadmap for this project but will hopefully be carried through (and revisited/refined if necessary) during the next full design process and construction of this project.

2.2 CITY'S EXISTING CLIMATE PLANS

The City of Missoula is a municipal leader in planning for the future by developing three plans that address current threats and future opportunities against climate change. The following diagram represents these plans (Climate Ready Missoula, Missoula Climate Action Plan, and Climate Smart Missoula) and current threats vs. future leadership and goals in reversing climate change.



City of Missoula Sustainability Goals



2.3 D2T CHARRETTE RESULTS

2.3.1 Project Goals

- **Become the Employer of Choice in Missoula (Wellbeing)**
- **Meet the City's 2030 Goals for Clean Energy and 2035 Goals of Carbon Neutrality for all City Operations. (Elements and Ecosystems)**
- **Right-size the new facility to provide for the future workforce and operations. (Elements)**
- **Increase facility resiliency against flooding, pandemics, and peak demand charges (Resiliency)**
- **Build Locale and Build to Last (Materials)**

2.3.2 D2T Values Votes

These fifteen participants were each given six votes. Each participant was able to use these votes on what they felt was most important. This completely voluntary voting exercise resulted in the following.

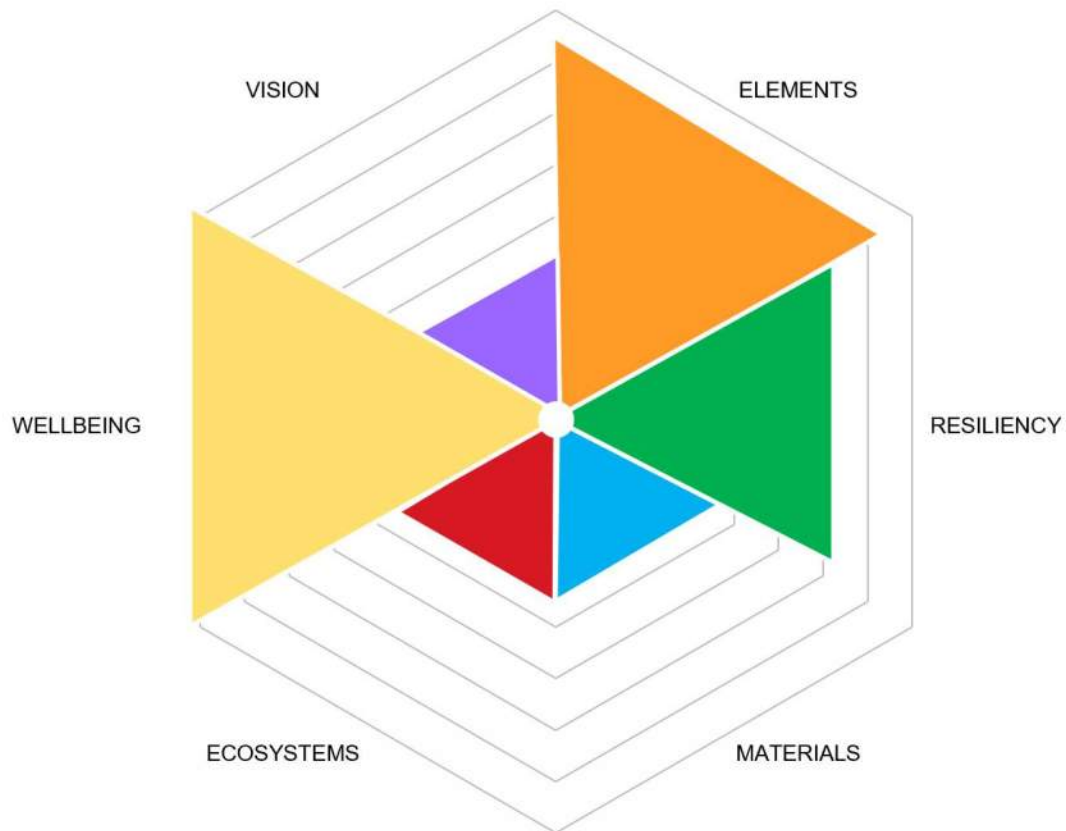
- Wellbeing: 16 votes, 26.3%
- Elements: 14 votes, 23.0%
- Resiliency: 11 votes, 18.0%
- Materials: 7 votes, 11.5%
- Ecosystems: 7 votes, 11.5%

MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

- Vision: 6 votes, 9.7%
- **TOTAL:** 61 votes, 100%

2.3.3 D2T Values Wheel

MISSOULA PUBLIC WORKS D2T PRIORITIES



MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

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3.0 PROGRAM SUMMARY

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MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

PROGRAM SUMMARY FOR SCOTT STREET SITE

6/30/2021 FINAL	2020 Existing		2030 Program		2040 Program		Comments
	Area	SF	Area		Area		
	1 Acre =	43560					
HEATED PARKING & STORAGE							
ADMINISTRATION	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
UTILITIES DEPARTMENT	23,506 SF	60.7%	63,520 SF	79.2%	71,920 SF	77.4%	
STREETS DEPARTMENT	5,920 SF	15.3%	14,640 SF	18.3%	18,560 SF	20.0%	
FLEET MAINTENANCE DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
PARKS DEPARTMENT	4,200 SF	10.8%	2,000 SF	2.5%	2,400 SF	2.6%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	5,130 SF	13.2%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH BUILDING GROSS FACTOR)	38,756 SF	100.0%	80,160 SF	100.0%	92,880 SF	100.0%	
TOTAL (WITH SITE GROSS FACTOR)	38,756 SF		140,280 SF		162,540 SF		
ACREAGE	0.89		3.22		3.73		
COVERED PARKING & STORAGE (3 sided, potential to enclose)							
ADMINISTRATION	150 SF	0.3%	200 SF	0.2%	400 SF	0.3%	
UTILITIES DEPARTMENT	7,830 SF	14.0%	14,080 SF	10.9%	17,720 SF	12.0%	
STREETS DEPARTMENT	45,500 SF	81.6%	108,840 SF	84.1%	122,440 SF	83.0%	
FLEET MAINTENANCE DEPARTMENT	2,280 SF	4.1%	2,640 SF	2.0%	2,640 SF	1.8%	
PARKS DEPARTMENT	0 SF	0.0%	3,600 SF	2.8%	4,320 SF	2.9%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	55,760 SF	100.0%	129,360 SF	100.0%	147,520 SF	100.0%	
TOTAL (WITH SITE GROSS FACTOR)	55,760 SF		226,380 SF		258,160 SF		
ACREAGE	1.28		5.20		5.93		
UNCOVERED PARKING & EQUIPMENT STORAGE							
ADMINISTRATION	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
UTILITIES DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
STREETS DEPARTMENT	4,800 SF	7.8%	7,200 SF	100.0%	8,000 SF	100.0%	
FLEET MAINTENANCE DEPARTMENT	1,440 SF	2.3%	0 SF	0.0%	0 SF	0.0%	
PARKS DEPARTMENT	55,080 SF	89.8%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	61,320 SF	100.0%	7,200 SF	100.0%	8,000 SF	100.0%	
TOTAL (WITH SITE GROSS FACTOR)	61,320 SF		12,600 SF		14,000 SF		
ACREAGE	1.41		0.29		0.32		
YARD & BULK STORAGE							
ADMINISTRATION	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
UTILITIES DEPARTMENT	7,560 SF	2.1%	13,440 SF	14.5%	16,800 SF	17.2%	
STREETS DEPARTMENT	254,913 SF	70.1%	77,360 SF	83.4%	78,824 SF	80.8%	25% Growth for 2030 and 35% Growth for 2040. Includes Structured Storage Walls, avg. 5ft to 10ft high.
FLEET MAINTENANCE DEPARTMENT	1,440 SF	0.4%	1,920 SF	2.1%	1,920 SF	2.0%	
PARKS DEPARTMENT	99,514 SF	27.4%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	363,427 SF	100.0%	92,720 SF	100.0%	97,544 SF	100.0%	
TOTAL (WITH SITE GROSS FACTOR)	363,427 SF		162,260 SF		170,702 SF		
ACREAGE	8.34		3.72		3.92		



MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

PROGRAM SUMMARY FOR SCOTT STREET SITE

6/30/2021 FINAL	2020 Existing		2030 Program		2040 Program		Comments
	Area		Area		Area		
	1 Acre =	43560 SF					
EMPLOYEE AND VISITOR PARKING							
ADMINISTRATION	600 SF	1.6%	1,600 SF	2.7%	2,240 SF	3.1%	
UTILITIES DEPARTMENT	19,200 SF	50.0%	25,520 SF	43.4%	29,264 SF	40.6%	
STREETS DEPARTMENT	15,300 SF	39.8%	21,760 SF	37.0%	26,880 SF	37.3%	
FLEET MAINTENANCE DEPARTMENT	3,300 SF	8.6%	9,920 SF	16.9%	13,760 SF	19.1%	
PARKS DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	38,400 SF	100.0%	58,800 SF	100.0%	72,144 SF	100.0%	
TOTAL (WITH SITE GROSS FACTOR)	38,400 SF		102,900 SF		126,252 SF		
ACREAGE	0.88		2.36		2.90		
ADMINISTRATION & OPERATIONS							
ADMINISTRATION	1,544 SF	8.2%	1,581 SF	4.2%	1,893 SF	4.3%	
UTILITIES DEPARTMENT	8,964 SF	47.4%	18,146 SF	47.7%	20,220 SF	46.0%	
STREETS DEPARTMENT	7,670 SF	40.6%	15,761 SF	41.5%	18,914 SF	43.0%	
FLEET MAINTENANCE DEPARTMENT	715 SF	3.8%	2,535 SF	6.7%	2,925 SF	6.7%	
PARKS DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	18,893 SF	100.0%	38,023 SF	100.0%	43,951 SF	100.0%	
TOTAL (WITH GROSS FACTOR, FROM PROGRAM DETAIL)	18,893 SF		57,035 SF		65,927 SF		
ACREAGE	0.43		0.87		1.01		
FLEET MAINTENANCE, SHOPS, & STORAGE							
ADMINISTRATION	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	
UTILITIES DEPARTMENT	2,794 SF	4.8%	7,462 SF	7.9%	9,265 SF	8.5%	
STREETS DEPARTMENT	20,870 SF	36.1%	36,189 SF	38.3%	48,660 SF	44.7%	
FLEET MAINTENANCE DEPARTMENT	34,125 SF	59.1%	50,904 SF	53.8%	50,904 SF	46.8%	
PARKS DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
PARKING COMMISSION DEPARTMENT	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TRANSIT AGENCIES	0 SF	0.0%	0 SF	0.0%	0 SF	0.0%	See program detail for non-Scott Street needs
TOTAL (WITH GROSS FACTOR, CALCULATED)	57,789 SF	100.0%	94,555 SF	100.0%	108,828 SF	100.0%	
TOTAL (WITH GROSS FACTOR, FROM PROGRAM DETAIL)	57,789 SF		94,555 SF		108,828 SF		
ACREAGE	1.33		2.17		2.50		
TOTAL SPACE NEEDS SITE & BUILDINGS SUMMARY							
NET SQUARE FEET PW PROGRAM	634,345 SF		796,009 SF		906,409 SF		
NET PROGRAM ACRES	14.56		18.27		20.81		
ADDITIONAL SITE PROGRAM NEEDS							
NEW COLLECTOR STREET THROUGH SITE	0 SF		120,063 SF		120,063 SF		Added to program after conversations with the City.
NEW 60 FT ROW RESIDENTIAL ROAD	0 SF		85,210 SF		85,210 SF		Added to program after conversations with the City.
ADDITIONAL PARKING FOR EXPANDED ADMIN BUILDING & RESIDENTIAL DEVELOPMENT	0 SF		60,000 SF		60,000 SF		Added to program after conversations with the City.
TOTAL PROGRAM NEEDS							
TOTAL - SQUARE FEET	634,345 SF		1,061,282 SF		1,086,472 SF		
TOTAL NEED - ACRES	14.6 AC		24.4 AC		24.9 AC		
ACRES AVAILABLE	27 AC		27 AC		27 AC		



MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

PROGRAM SUMMARY FOR SCOTT STREET SITE

6/30/2021 FINAL	2020 Existing	2030 Program	2040 Program	Comments
	Area	Area	Area	
	1 Acre = 43560 SF			
DELTA (AVAILABLE - TOTAL NEED)	12.44	2.64	2.06	
TOTAL SPACE NEEDS - BUILDINGS SUMMARY (HEATED STORAGE, ADMIN & OPS, FLEET MAINTENANCE/SHOPS/STORAGE)				
SQUARE FEET	115,438 SF	212,738 SF	245,659 SF	
ACRES	2.65	4.88	5.64	

4.0 PLANNING STANDARDS, CRITERIA, AND METHODOLOGY

Stantec provided a user questionnaire to each department to identify their current 2020 staff numbers, numbers and sizes of equipment and vehicles, and any current growth plans for each. Typically, these growth needs are easy to quantify in the immediate future, i.e., less than 5 years. Our job is to expand this discussion and thought to consider and document the 10 and 20 year needs. Growth is driven by service needs so planning for long term growth based on street miles, pipe miles and anticipated growth to these key city amenities is our approach to programming for the coming decades. Growth in these amenities equates to additional vehicles, equipment, and people to operate these elements.

The following are key excerpts from the questionnaires that were used in determining planned growth. These results were then discussed during the programming charrettes to further refine and develop these numbers. For this Facilities Master Plan we used a standard escalation factor across each department to start the discussion. The true numbers were further refined through several follow-up review sessions with key staff members over a period of 3 months.

- 2020: Now + Right Sizing if you had it all
- 2030: 25% growth (from 2020)
- 2040: 35% growth (from 2020)

4.1 QUESTIONNAIRE TEMPLATES

The following highlights the content of what was provided within the questionnaires. The document structure builds from general to specific questions. The questionnaires returned were thorough and thoughtful. The tables included within this section were pulled straight from the returned questionnaires to show the type of information requested. Each questionnaire is 11 pages in length as an unedited document.

General Information

Function: Please describe the primary function and activities of your department or group.

Operation: Please provide security concerns/ requirements, maximum number of simultaneous visitors and frequency of visitors to your department or group, and the necessity for afterhours access to the facility.

Envisioning a New Future Home

If you could have it all? IDEAS: Ideal geographic location, multi-use facility shared with other public entities, ability to move every vehicle independently, all under one roof on one level, multi-level is acceptable, multiple buildings is acceptable, sustainable, includes on-site energy production (wind/solar), planned for future growth, easily adaptable vs. permanent, etc.

Qualities of Spaces IDEAS: Optimized efficiency (operationally, energy savings, water savings, etc.), flexibility of spaces, daylit interior spaces for everyone, bright and colorful, bright and muted, controllability of lighting and HVAC systems, open office environment, closed office environment, collaborative and open, etc.

Areas for Improvement? IDEAS: Flow, efficiency of operations, efficiency of maintenance, parking capacity, one level vs. multi-level, energy efficient, adjacencies and layout, conference space, locker rooms, restrooms, etc.

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Organizational Culture? IDEAS: Integrated, horizontal, pyramidal, collaborative, top down and bottoms up, tolerant, etc.

Optimized Adjacencies? IDEAS: Views of the yard, safety and oversight, administration relative to operations relative to maintenance, vehicles facing a certain direction because of prevailing winds and ice, all on one level, single building vs. multiple buildings, etc.

Staffing Requirements

Staffing: Please provide an organization chart of your department or group (or sketch one on the back of this sheet). The Planning Team requests to determine existing staffing levels and will project this information for the future growth requirements. Please list staff in your group or department.

Position	2030	2040	Shift Hours	Full-Time	Part-Time	Part-Time
2 - Superintendents			6:30 am – 5:00 pm	y		
1- Administrative Assistant			8:00 am – 4:30 pm	y		
33 – Laborers/Operators			6:30 am – 5:00 pm	y		

Vehicles and Parking Requirements

Vehicles: Please provide a detailed vehicle inventory and summarize below, by vehicle class, the vehicles or pieces of equipment used by your department or group. Be prepared to discuss size (S=8'x10', M=10'x20', L=12'x30', XL=12'x40'), quantity, preferred storage method, and growth projections.

Vehicle Type/ Current Vehicle Count	Vehicle Count		Vehicle Size				Parking Needs		
	2030	2040	S	M	L	XL	Uncovered	Covered	Enclosed
2 Road Graders	3	4				X		X	
1 Vector Truck	2	3				X			X
1 Backhoe	2	2				X		X	
8 Tandem Dump Trucks	10	12			X			X	

Existing Spaces

Existing Space: Briefly list all spaces utilized by your department or group and be prepared to discuss your current facilities, where they are located, and any current space inadequacies, etc. **Provide a floor plan or sketch if available.** Describe your existing space and its location (include existing and proposed spaces by function).

Space	Size (L x W)	Function/Inadequacies
-------	--------------	-----------------------

MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

Northside stockpile yard (Shakespeare/Rodgers St.)	Approx. 18 acres	Storage of construction materials and debris. Walled/impermeable settling pond and street sweepings drying area. Screen plant operation. Asphalt cleanout walled impermeable pad. Snow and leaf storage. Adequate
Indoor heated equipment shed (Scott St.)	120'x 90'	Store sweepers, crack seal materials, and snow equipment. Inadequate

Shared Space Requirements

Shared Space Requirements: Please list all shared area requirements for your department/group. Please list the title of the space and the relationship/adjacency it may have to other shop spaces. Please briefly describe the special design features or finishes needed for the shop.

Shared Space Name	Number of people	Adjacency	Special Features/Furniture
Missoula Water fueling station	NA	Missoula Water	Streets shares bulk diesel storage tanks with Missoula Water for fueling equipment. Six tanks 12,000-gallon each. Covered tank farm with secondary containment is 90' X 46'. Adjacent drive and fuel delivery route is approximately 0.5 acre.

Office Workstation Requirements

Office/Workstation Requirements: Please list any office requirements for your department/group. Please list the title of the office and if it is an open or closed office/workstation. Please briefly describe the filing/furniture needs, function and the amount of time each day spent in the office.

Office/Workstation Title/Position	Type	Approx. Size	Individual filing needs and furniture for the space	Work function and time spent in the office/workstation
	Open/Closed			
Administrative Assistant	Closed	16' X 16'	Large front shelf for office supplies 2'X14'X4', 2 filing cabinets, and computer station, and copy machine, 2 visitor chairs.	Admin work, reception, phone, filing, copying, 8 hours/day, 5 days/week
Street Superintendent offices (2)	Shared/closed	28' X 13"	2 Computer work stations, 4 filing cabinets, two visitor chairs,	Admin work. 2-10 hours per day, 4-5 days/week.

MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

Shop/Area Requirements

Shop/Work Area Requirements: Please list all shop or work area requirements for your department/group. Please list the title of the space and the relationship/adjacency it may have to other shop spaces. Please briefly describe the equipment needs and any special design features or finishes needed for the shop.

Shop Name	Adjacency	Approx. Size	Specific Equipment Items	Special Features/Finishes
Wood Shop/Barricade Manufacturing Shop	Vehicle Maintenance	20' X 25'	Radial Arm Saw, painting/drying space. Manufacturing area, storage of paint, shelves and locking cabinets for tools	Heated and located within Vehicle Maintenance building. Inadequate

Storage Requirements

Special Storage Requirements: Please list any special storage requirements for your department/group. Please list types of materials, size of storage requirement, storage type, security requirements, and any special comments that you may have. Include all storage requirements that are currently off-site which you would like to move on-site and any storage on-site that could be stored off-site.

Emergency Event Requirements

Living Facilities: Please describe the type of living spaces required to accommodate your department or group for three days after an event. (E.g., Bunk areas, Kitchen, showers)

Emergency Facility Systems: Please describe the type of minimal functions/operations required to accommodate your department or group for three days after an event without outside assistance. (E.g., Water storage, Radio receiver, fuel)

Other Data and Information

Please provide the following information to assist the Planning Team in their programming efforts.

- ✓ As-built floor plans of the current facilities.
- ✓ Site plan or survey of the current site. Please include information on other sites/facilities if they are utilized by the Streets but not located on the existing Site.

5.0 PROJECT PHASING DETAIL

Funding and constructing an entire facility of this scale is no small task, and as such has been designed to allow the City to implement the master plan over time in phased increments. Ideally, each phase would allow for ten years of growth within that primary scope of work. Smaller sub-phases within that period could certainly be possible.

5.1 PHASE 1

5.1.1 Administration and Operations Building

Two stories are required, but there is a desire with the City to over build (potentially three to four stories) to allow for future growth within other City Departments and/or future additional partnerships with public/private organizations that need office space and workplaces. Although these needs are not currently identified, this could provide a future revenue source for the City through the leasable square footage. If this direction becomes the preferred option, we suggest to “core and shell” these areas only. This means that the full volume of the structure would be created (floors, exterior walls, vertical circulation cores, roofs, plumbing cores, etc.) and finished at a later date once the exact needs have been defined. This would allow for one or two significant tenants while also providing the ability to house several smaller tenants.

5.1.2 Employee Parking

Fully construct this area initially, both for Public Works and also for the adjacent residential development. Within this plan, we have assumed this area would be fully landscaped to meet or exceed the City’s zoning standards and would include irrigation. The landscape areas themselves can also serve as storm water quality ponds while the vegetation (trees and shrubs mostly) would assist with carbon sequestration. All good landscapes take time (10+ years) before their full design intent is fully realized, so prioritizing full construction of this area should be a priority.

5.1.3 Small, Large, and X-Large Heated Vehicle and Equipment Storage

This facility will be shared by Streets and Utilities and is designed for vehicles and equipment that require 12 ft x 30 ft and 12 ft x 40 ft individually sized spaces. There is some small (10 x 10) storage as well which can more easily be moved around and accessed. Current heated storage is not adequate and thus the need to increase the overall size by 310%. These vehicles and equipment are expensive capital investments and storing them within heated storage is necessary to prolong their lifespans.

5.1.4 Material Storage Bins

The quantity of on-site bulk material storage will be moved off site. On site needs are fairly small as compared to all other facility needs. The need does not facilitate phasing and as stated above,

MISSOULA PUBLIC WORKS FACILITIES MASTER PLAN

constructing the full northern edge of the facility will reduce construction impacts to operations at a later date.

5.1.5 Sand and Salt Storage

The existing facility is being displaced within the master plan to make room for the operations buildings and will need to be provided initially. It is a component of the visual and noise buffer to the residential neighbors and encloses the northeast corner of the site. If the City's roadway network expands in the future, it could be feasible that an additional Sand and Salt Storage facility or two could be constructed elsewhere in the City in order to cut down on deadhead time. If this is not achievable nor desired, the bulk material delivery schedule can always be increased to keep enough material on hand throughout the winter season.

5.2 PHASE 2

5.2.1 Fleet Maintenance

Fleet Maintenance is woefully undersized based on the quantity of vehicles and equipment currently being maintained. The team manages to get their work done but could provide better and more efficient service to their customers if they had full use of their facility. Much of the work within will be a remodel, so costs are not as significant as building a new facility from the ground up. At this time, it is unclear what type of upgrades will be necessary to bring this facility up to current building codes. This will all depend on the timing of the work and local jurisdictional requirements regarding seismic and energy efficiency standards.

5.2.2 Fuel and Wash Facilities

Each of these facilities will be required initially to fulfill all operational needs. They are used every day, not only by Public Works but all City departments and agencies. Additional fuel tanks can always be added in the future, but all piping and infrastructure needs to be installed initially. These program elements have been placed to avoid conflicts on the interior of the site by placing them along the 90 ft collector street. This will provide in and out access to all City users.

5.2.3 Streets and Utilities Shops and Storage Buildings

Fully construct these facilities to create the noise and visual separation screen/buffer along the new 60 ft. ROW residential street. These shop and storage spaces are needed now because currently they don't exist or are occurring with the Fleet Maintenance Building. Fleet Maintenance needs every square foot within its building's footprint eventually, thus the need for Public Works to vacate this space within phase one.

5.3 PHASE 3

5.3.1 Large and Medium Covered Vehicle Storage

Construct this facility in its entirety to provide storage for full growth needs.

5.3.2 Small and Medium Heated Vehicle and Equipment Storage

Construct this facility in its entirety to provide storage for full growth needs.

6.0 NEXT STEPS

The goals and budget for this Facilities Master Plan was to deliver a high-level programming effort, i.e., square footage per employee. This is great planning tool, but for more detailed design, a more detailed program will be required. This will need to include a “Room by Room” program. This will provide detailed information regarding everything from private offices, workstation sizes, shop bay sizes, etc. More so though, it will also provide the qualitative data associated with these spaces, i.e., specific audio/visual needs, specific equipment, and utility needs, volumetric and clearance needs, materiality, and durability. Ideally, this planning effort will be done with your designers onsite talking directly with your staff and leadership.

After development of the room-by-room program, conceptual facility plans can be generated that show spatial allocation, room sizes, corridors, utility spaces, and all needs identified for Administration/Operations, Heated Vehicle Storage, Covered Storage, Shops, and Maintenance. The conceptual facility plans are then utilized to generate 3Dimensional massing, materials, glazing, doors, etc. Throughout this process, the conceptual master plan will be further developed to address all the changes based on program needs and conceptual facility plans.

Advancing the design of the master plan and facility plans to a schematic or 30% design level will begin to provide cost certainty to better aid the City in the decision-making and planning processes. As design maturity advances, costs become more certain.

Additionally, next steps investigative work is required if not already started by the City. This should include a full site survey, geotechnical engineering, and environmental survey at a minimum. Coordination with MTD regarding the new 90-foot collector street is most likely necessary since the intent of this roadway is to continue north and connect to the interstate. This most likely does not affect the on-site improvements but should be looked at collectively in its entirety (if not already started).

APPENDIX 1:
Space Needs Program Detail

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MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	106%
City Population Projection (utilizing County %)	75,516	88,956	93,998

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
HEATED PARKING & STORAGE
6/30/2021 FINAL
Vehicles and Equipment Needs

6/30/2021 FINAL		2020 Existing			2030 Program			2040 Program			
Vehicles and Equipment Needs		Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments

ADMINISTRATION
Administration

	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

City Engineering

From Monte Sipe	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					0	0		0	0		0	0	
	Circulation Gross Factor					50%	0		100%	0		100%	0	
	Admin Heated Storage	SF				0	0		0	0		0	0	

UTILITIES DEPARTMENT
Stormwater

From Marie Noland	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	1	480	Vac Truck	2	960	additional Vac Truck required	4	1,920	Additional Growth
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Collections

From Pat Brook	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	5	1,800	4 Service Vans, 1 TV Van	8	2,880	6 Service Vans, 2 TV Van	8	2,880	No growth
	X-Large	480	12	x	40	5	2,400	3 Jet, 2 Vac Trucks	11	5,280	5 Jet, 6 Vac Trucks	14	6,720	7 Jet, 7 Vac Trucks
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Water

From Jerry Ellis	Small	100	10	x	10	1	100	1 Skid Steer	1	100	Growth listed as N/A	1	100	Growth listed as N/A
	Medium	200	10	x	20	36	7,200	20 Service body vehicles, 11 work vehicles, 3 people haulers	40	8,000		44	8,800	
	Large	360	12	x	30	1	360	Water Wagon (enclosed trailer with pumps and taps)	1	360	Water Wagon (enclosed trailer with pumps and taps)	1	360	Water Wagon (enclosed trailer with pumps and taps)
	X-Large	480	12	x	40									
	XX-Large	840	14	x	60									
	Basement Heated Storage						10,000	W. Broadway Storage. Pipe storage, vehicles, equipment -- break this down further into Warehouse vs. parking	1.25	12,500	Needs to move to Scott Street + growth	1.35	13,500	Needs to move to Scott Street + growth
	Storage for grounds equipment, turbine oil, grease		14	x	60	2	1,680	Currently in out buildings	2	1,680	Adjacent to heated vehicles	2	1,680	Adjacent to heated vehicles
	Existing SF adjustment = 6,086 per Floor Plan						(514)	Based on provided floor plan						
	Subtotal					51	23,506		66	31,760		75	35,960	
	Circulation Gross Factor					0%	0	Estimated	100%	31,760		100%	35,960	
	Utility Operations Heated Storage	SF				51	23,506		66	63,520		75	71,920	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114%
City Population Projection (utilizing County %)	75,516	88,956	93,998 112%

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

HEATED PARKING & STORAGE

6/30/2021 FINAL
Vehicles and Equipment Needs

	2020 Existing				2030 Program				2040 Program			
	Space	Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments	

STREETS DEPARTMENT

Streets												
From Brian Hensel	Small	100	10	x	10	0	0		0	0		
	Medium	200	10	x	20	11	2,200	Sweepers	12	2,400	14	2,800
	Large	360	12	x	30	9	3,240	Sanding/Plow Trucks	11	3,960	14	5,040
	X-Large	480	12	x	40	1	480	Vactor Trucks	2	960	3	1,440
	XX-Large	840	14	x	60	0	0		0	0	0	0
								General Notes: Current facility is 10,800 sf and is listed as inadequate	0	0	0	0

Comm Shop

From Rick Larson	Traffic Signal Equipment Storage	100	10	x	10	4	400	Inadequate storage, 3 separate storage areas, and not close to operations	6	600	Consolidate separate spaces, provide additional room for Growth.	8	800	Consolidate separate spaces, provide additional room for Growth.
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	2	960	Bucket Trucks	3	1,440	Bucket Trucks	4	1,920	Bucket Trucks
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Traffic Services

From Chad Pancake	Small	100	10	x	10	2	200		4	400		6	600	
	Medium	200	10	x	20	2	400	Traffic Services-Pickup	3	600		4	800	
	Large	360	12	x	30	3	1,080	Isuzus	5	1,800		7	2,520	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					34	5,920		46	7,320		60	9,280	
	Circulation Gross Factor					0%	0		100%	7,320		100%	9,280	
	Streets Heated Storage	SF				34	5,920		46	14,640		60	18,560	

FLEET MAINTENANCE DEPARTMENT

From Scot Colwell	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					0	0		0	0		0	0	
	Circulation Gross Factor					50%	0		100%	0		100%	0	
	Fleet Maintenance Heated Storage	SF				0	0		0	0		0	0	

PARKS DEPARTMENT

From David Selva	Small	100	10	x	10	28	2,800	Will not live at Scott Street due to Parks needs for centrally located facilities. Mowers, Snow removal, and specialty equipment listed as uncovered, covered, and heated.	30	3,000	Mowers, Snow removal, and specialty equipment listed as uncovered, covered, and heated.	32	3,200	Mowers, Snow removal, and specialty equipment listed as uncovered, covered, and heated.
	Medium	200	10	x	20	0	0	Mowers and snow removal listed as M & L	0	0		0	0	
	Large	360	12	x	30	0	0	Mowers and snow removal listed as M & L	0	0		0	0	
	Circulation Gross Factor								100%	3,000		100%	3,200	
	Program correction for non-Scott Street location.							Will live at future Parks Facility, not 100 Hickory, nor Scott Street site	(30)	(6,000)	Will live at future Parks Facility, not 100 Hickory, nor Scott Street site	(32)	(6,400)	Will live at future Parks Facility, not 100 Hickory, nor Scott Street site
	Medium	200	10	x	20	0	0	Currently use bikes	5	1,000	Vehicles for Parks Trails Design-Dev Manager, Parks Trails Design-Dev Coord, Director, and Open Space Program Manager	6	1,200	Vehicles for Parks Trails Design-Dev Manager, Parks Trails Design-Dev Coord, Director, and Open Space Program Manager
							0			0			0	
	Subtotal					28	2,800		5	1,000		6	1,200	
	Circulation Gross Factor					50%	1,400		100%	1,000		100%	1,200	
	Parks & Rec Heated Storage	SF				28	4,200		5	2,000		6	2,400	

PARKING COMMISSION DEPARTMENT

Missoula County Population and Projections
Growth Calculation
City Population Projection (utilizing County %)

2030 Projected
140,437
118%
88,956

2040 Projected
148,397
106%
93,998

HEATED PARKING & STORAGE

Vehicles and Equipment Needs

2030 Program

2040 Program

			Space Standard			Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments
From Tiffany Brander	Small	100	10	x	10	3	300	5 Enforcement Scooters, 2 per space	3	300	6 Enforcement Scooters, 2 per space. Need to be Downtown	4	400	8 Enforcement Scooters, 2 per space. Need to be Downtown.
	Central Park Indoor Fenced Storage						116	rakes, shovels, brooms, ice melt, extra garbage cans, water hoses		116		0	116	
	Central Park Basement						688	Winter tools, lawnmower, weed eater, spare meters, sign poles, old gate arms, air compressors, leaf blowers		688		0	688	
	Park Place Basement						4,026	toolcat and its attachments, paint supplies, spare scooter, sign poles, a cabinet for all spare signage, construction cones, and candles	0	4,026		0	4,026	
	Program correction for non-Scott Street location.								(3)	(5,130)	Parking Commission will not live at Scott Street	(4)	(5,230)	Parking Commission will not live at Scott Street
							0							
	Subtotal					3	5,130		0	0		0	0	
	Circulation Gross Factor					0%	0	Included above	100%	0	Included above	100%	0	Included above
	Parking Commission Heated Storage	SF				3	5,130		0	0		0	0	

Mountain Line and UDASH

Completed in 2019	Lost and Found Bike Storage		8	x	30		0	0		1	240	Cold Storage		1	240	Cold Storage
	Employee Bike Storage		8	x	30		0	0		1	240	Cold Storage		1	240	Cold Storage
	From 2019 Mountain Line and UDASH detailed program						60	22,847	Includes all transit and support vehicles	85	39,860	Includes all transit and support vehicles		100	46,680	Includes all transit and support vehicles
								0			0				0	
	Subtotal						60	22,847		87	40,340			102	47,160	
	Circulation Gross Factor						50%	11,424		100%	40,340	Includes interior drive aisle access		100%	47,160	Includes interior drive aisle access
	Program correction for non-Scott Street location.						(60)	(34,271)		(87)	(80,680)			(102)	(94,320)	
	Transportation Heated Storage	SF					0	0		0	0			0	0	
	HEATED PARKING & STORAGE	SF						38,756			80,160				92,880	

TOTAL SQUARE FEET	38,756	80,160	92,880
SITE CIRCULATION, SETBACKS, STORM DETENTION	38,756	80,160	92,880
TOTAL ACREAGE	0.89	1.8	2.1

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	106%
City Population Projection (utilizing County %)	75,516	88,956 114%	93,998 112%

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

COVERED PARKING & EQUIPMENT STORAGE

6/30/2021 FINAL

Vehicles, Equipment, and Bulk Storage Needs

6/30/2021 FINAL		2020 Existing			2030 Program			2040 Program			
Vehicles, Equipment, and Bulk Storage Needs											
Space Standard	Qty	Area	Comments		Qty.	Area	Comments		Qty.	Area	Comments

ADMINISTRATION

Administration

	Small	100	10	x	10	1	100		1	100		0	0	
	Medium	200	10	x	20	0	0		0	0		1	200	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

City Engineering

From Monte Sipe	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					1	100		1	100		1	200	
	Circulation Gross Factor					50%	50		100%	100		100%	200	
	Admin Covered Storage	SF				1	150		1	200		1	400	

UTILITIES DEPARTMENT

Stormwater

From Marie Noland	Small	100	10	x	10	0	0							
	Medium	200	10	x	20	1	200	Storm: Utility Truck	4	800	Storm: Utility Truck, 4WD vehicle	8	1,600	Anticipated Growth
	Medium	200	10	x	20	1	200	Utility Trailer	2	400	Growth in Utility Trailers needed?	2	400	Growth in Utility Trailers needed?
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Collections

From Pat Brook	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Water

From Jerry Ellis	Small	100	10	x	10	1	100	Zero turn mower	2	200		3	300	
	Medium	200	10	x	20	2	400	2 medium trailers	3	600		4	800	
	Large	360	12	x	30	12	4,320	1 Leak Truck, 8 Generators, 3 large trailers - - Generator Docking station	14	5,040	1 Leak Truck, 9 Generators, 4 large trailers - - Generator Docking station	16	5,760	1 Leak Truck, 10 Generators, 5 large trailers - - Generator Docking station
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					17	5,220		25	7,040		33	8,860	
	Circulation Gross Factor					50%	2,610		100%	7,040		100%	8,860	
	Utility Operations Covered Storage	SF				17	7,830		25	14,080		33	17,720	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040									
2020 Existing				2030 Projected			2040 Projected		
Missoula County Population and Projections				119,219			140,437 08/24/20 Update from J.		
Growth Calculation				118%			114%		
City Population Projection (utilizing County %)				75,516			88,956		
							106%		
							112%		
							93,998		

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040									
COVERED PARKING & EQUIPMENT STORAGE									
6/30/2021 FINAL									
Vehicles, Equipment, and Bulk Storage Needs									
		2020 Existing		2030 Program			2040 Program		
Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments

STREETS DEPARTMENT

Streets														
From Brian Hensel	Small	100	10	x	10	4	400	Skid steers and crack seal/mastic trailers	6	600		7	700	
	Medium	200	10	x	20	8	1,600	Rollers and Pothole patch trucks	10	2,000	Check numbers under Rollers (5 existing and 1 each for future)	11	2,200	Check numbers under Rollers (5 existing and 1 each for future)
	Large	360	12	x	30	28	10,080	Loader, Equipment Trailer, Tandem Dump Truck, Deicing/Plow Trucks, Water Truck, Garbage Truck	39	14,040	Loader, Equipment Trailer, Tandem Dump Truck, Deicing/Plow Trucks, Water Truck, Garbage Truck	46	16,560	Loader, Equipment Trailer, Tandem Dump Truck, Deicing/Plow Trucks, Water Truck, Garbage Truck
	X-Large	480	12	x	40	4	1,920	Road Graders, Backhoe and Snow Blower	6	2,880		7	3,360	
	Asphalt Recycler, Millings Storage	480	30	x	40	2	2,400	Screen plant and Asphalt recycler/conveyor	2	2,400	Screen plant and Asphalt recycler/conveyor, stand alone. TBD if Brian will continue to use it.	2	2,400	Screen plant and Asphalt recycler/conveyor, stand alone. TBD if Brian will continue to use it.
	XX-Large	840	14	x	60	0	0		0	0		0	0	
	Asphalt equipment/parts storage		60	x	100	0	0	2020 in Yard Storage	1.25	7,500		1.50	9,000	
	Additional Equipment Parking	20000	100	x	200	1	20,000		1.25	25,000		1.35	27,000	

Comm Shop

From Rick Larson	Traffic Pole Storage	920	23	x	40	1	920	Adequate now, but need 2X the space, needs to be enclosed with doors and unheated	2	1,840	Need 2X the space, needs to be enclosed with doors and unheated	3	2,760	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	4	1,440	Work Trucks	4	1,440	Work Trucks	5	1,800	Work Trucks
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Traffic Services

From Chad Pancake	Covered Storage	1,600	40	x	40	1	1,600	3 sided - Paint truck refilling station in summer, seasonal equipment storage in winter	1.5	2,400		2	3,200	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					47	36,400		66	54,420		76	61,220	
	Circulation Gross Factor					25%	9,100	25% = estimated	100%	54,420		100%	61,220	
	Streets Covered Storage	SF				47	45,500		66	108,840		76	122,440	

FLEET MAINTENANCE DEPARTMENT

From Scot Colwell	Small	100	10	x	10	2	200	Forklift + Sweeper	2	200		2	200	
	Medium	200	10	x	20	2	400	Mechanic + Fleet Mgr Truck	2	400		2	400	
	Large	360	12	x	30	2	720	Shop + Welding Truck	2	720		2	720	
	X-Large	480	12	x	40	2	960	Scissor + Crane Truck	0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					8	2,280		6	1,320		6	1,320	
	Circulation Gross Factor					0%	0		100%	1,320		100%	1,320	
	Fleet Maintenance Covered Storage	SF				8	2,280		6	2,640		6	2,640	

PARKS DEPARTMENT

From David Selva	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	9	3,240	Rec Vans/Rec Vehicles	11	3,960	Added 1 each, rec. van & rec. vehicle	13	4,680	Added 1 each, rec. van & rec. vehicle
	X-Large	480	12	x	40	8	3,840	XL Equip	8	3,840		8	3,840	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					17	7,080		19	7,800		21	8,520	
	Circulation Gross Factor					50%	3,540		100%	7,800		100%	8,520	
	Program correction for non-Scott Street location.					(17)	(10,620)		(19)	(15,600)		(21)	(17,040)	

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118% 114%	106% 112%
City Population Projection (utilizing County %)	75,516	88,956	93,998

			Space Standard			Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments
	Large	360	12	x	30	0	0		5	1,800	Confirmed with Scot Colwell. Big mowers stored in winter for maintenance at Fleet Maintenance's convenience. Mower's are about \$90K each and Scot would like them to be covered.	6	2,160	Confirmed with Scot Colwell. Big mowers stored in winter for maintenance at Fleet Maintenance's convenience. Mower's are about \$90K each and Scot would like them to be covered.
	Circulation Gross Factor					50%	0		100%	1,800		100%	2,160	
	Parks & Rec Covered Storage	SF				0	0	Will live at future Parks Facility, not 100 Hickory	5	3,600		6	4,320	

From Tiffany Brander	Small	100	10	x	10	1	100	Toolcat	1	100		2	200	Growth - snow removal, sweeping parking garage (only piece of equipment that will fit in garage)
	Medium	200	10	x	20	3	600	Maint. Trucks	4	800		4	800	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					4	700		5	900		6	1,000	
	Circulation Gross Factor					50%	350		100%	900		100%	1,000	
	Program correction for non-Scott Street location.					(4)	(1,050)		(5)	(1,800)		(6)	(2,000)	
	Parking Commission Covered Storage	SF				0	0		0	0		0	0	

Mountain Line and UDASH

Completed in 2019	Small	100		10	x	10		0			0			0			0		
	Medium	200		10	x	20		0			0			0			0		
	Large	360		12	x	30		0			0			0			0		
	X-Large	480		12	x	40		0			5	2,700	Deadline, near Maintenance		8	4,320			
	XX-Large	840		14	x	60		0				0			0				
								0				0			0				
	Subtotal							0	0		5	2,700			8	4,320			
	Circulation Gross Factor							50%	0		100%	2,700			100%	4,320			
	Program correction for non-Scott Street location.							0	0		(5)	(5,400)			(8)	(8,640)			
	Transportation Covered Storage	SF						0	0		0	0			0	0			
	COVERED PARKING & EQUIPMENT STORAGE	SF						55,760			129,360				147,520				

TOTAL SQUARE FEET	55,760	129,360	147,520
TOTAL ACREAGE	1.28	3.0	3.4

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040															
				2020 Existing				2030 Projected				2040 Projected			
Missoula County Population and Projections				119,219				140,437				148,397			
Growth Calculation								118%				114%			
City Population Projection (utilizing County %)				75,516				88,956				93,998			
MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040															
UNCOVERED PARKING & EQUIPMENT STORAGE															
6/30/2021 FINAL				2020 Existing				2030 Program				2040 Program			
Vehicles, Equipment, and Bulk Storage Needs				Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments		
ADMINISTRATION															
Administration															
	Small	100	10	x	10	0	0	0	0		0	0			
	Medium	200	10	x	20	0	0	0	0		0	0			
	Large	360	12	x	30	0	0	0	0		0	0			
	X-Large	480	12	x	40	0	0	0	0		0	0			
	XX-Large	840	14	x	60	0	0	0	0		0	0			
City Engineering															
From Monte Sipe	Small	100	10	x	10	0	0	0	0		0	0			
	Medium	200	10	x	20	0	0	0	0		0	0			
	Large	360	12	x	30	0	0	0	0		0	0			
	X-Large	480	12	x	40	0	0	0	0		0	0			
	XX-Large	840	14	x	60	0	0	0	0		0	0			
							0		0			0			
	Subtotal					0	0	0	0		0	0			
	Circulation Gross Factor					50%	0	100%	0		100%	0			
	Admin Uncovered Parking at Scott Street	SF				0	0	0	0		0	0			
UTILITIES DEPARTMENT															
Stormwater															
From Marie Noland	Small	100	10	x	10	0	0	0	0		0	0			
	Medium	200	10	x	20	0	0	0	0		0	0			
	Large	360	12	x	30	0	0	0	0		0	0			
	X-Large	480	12	x	40	0	0	0	0		0	0			
	XX-Large	840	14	x	60	0	0	0	0		0	0			
Collections															
From Pat Brook	Small	100	10	x	10	0	0	0	0		0	0			
	Medium	200	10	x	20	0	0	0	0		0	0			
	Large	360	12	x	30	0	0	0	0		0	0			
	X-Large	480	12	x	40	0	0	0	0		0	0			
	XX-Large	840	14	x	60	0	0	0	0		0	0			
Water															
From Jerry Ellis	Small	100	10	x	10	0	0	0	0		0	0			
	Medium	200	10	x	20	0	0	0	0		0	0			
	Large	360	12	x	30	0	0	0	0		0	0			
	X-Large	480	12	x	40	0	0	0	0		0	0			
	XX-Large	840	14	x	60	0	0	0	0		0	0			
							0		0			0			
	Subtotal					0	0	0	0		0	0			
	Circulation Gross Factor					0%	0	100%	0		100%	0			
	Utility Operations Uncovered Parking at Scott Street	SF				0	0	0	0		0	0			

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114% 106%
City Population Projection (utilizing County %)	75,516	88,956	93,998 112%

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

UNCOVERED PARKING & EQUIPMENT STORAGE

6/30/2021 FINAL

Vehicles, Equipment, and Bulk Storage Needs

	2020 Existing	2030 Program	2040 Program
Space Standard	Qty	Area	Comments
Qty.	Area	Comments	Qty.
Area	Comments	Qty.	Area
Comments	Qty.	Area	Comments

STREETS DEPARTMENT

Streets

From Jerry Ellis	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	16	3,200	Pickups	18	3,600	Pickups	20	4,000	Pickups
	Large	360	12	x	30	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Comm Shop

From Rick Larson	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Traffic Services

From Chad Pancake	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					16	3,200		18	3,600		20	4,000	
	Circulation Gross Factor					50%	1,600		100%	3,600		100%	4,000	
	Streets Uncovered Storage	SF				16	4,800		18	7,200		20	8,000	

FLEET MAINTENANCE DEPARTMENT

From Scot Colwell	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	2	960	Scissor + Crane truck	0	0	Moved to Covered Storage	0	0	Moved to Covered Storage
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					2	960		0	0		0	0	
	Circulation Gross Factor					50%	480		100%	0		100%	0	
	Fleet Maintenance Uncovered Parking at Scott Street	SF				2	1,440		0	0		0	0	

PARKS DEPARTMENT

From David Selva	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	44	8,800	M trucks and Trailers	52	10,400	Projected growth 6 M trucks + 2 Trailers	59	11,800	Projected growth 6 M trucks + 1 Trailer
	Large	360	12	x	30	21	7,560	Trucks	22	7,920	Projected growth 1 truck	23	8,280	Projected growth 1 truck
	X-Large	480	12	x	40	8	3,840	Trucks	8	3,840		8	3,840	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
	Subtotal					73	20,200		82	22,160		90	23,920	
	Circulation Gross Factor					50%	10,100		100%	22,160		100%	23,920	
	Program correction for non-Scott Street location.					(73)	(30,300)		(82)	(44,320)		(90)	(47,840)	
							0			0			0	
	Large	360	12	x	30	102	36,720	Winter storage of Parks Equipment at Scott Street for Equipment repair and maintenance. Parks, please review this number. 55K SF equates to approximately 102 large vehicles.	0	0	Needs moved to Covered Parking.	0	0	Needs moved to Covered Parking.
	Circulation Gross Factor					50%	18,360		100%	0		100%	0	
	Parks & Rec Uncovered Parking at Scott Street	SF				102	55,080		0	0		0	0	

PARKING COMMISSION DEPARTMENT

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040												
			2020 Existing			2030 Projected			2040 Projected			
Missoula County Population and Projections			119,219			140,437			148,397			
Growth Calculation						118%			114%			
City Population Projection (utilizing County %)			75,516			88,956			93,998			

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040																				
UNCOVERED PARKING & EQUIPMENT STORAGE																				
6/30/2021 FINAL																				
Vehicles, Equipment, and Bulk Storage Needs																				
			2020 Existing					2030 Program					2040 Program							
			Space Standard			Qty	Area	Comments				Qty.	Area	Comments				Qty.	Area	Comments
From Tiffany Brander	Small	100	10	x	10	0	0			0	0			0	0			0	0	
	Medium	200	10	x	20	0	0			0	0			0	0			0	0	
	Large	360	12	x	30	0	0			0	0			0	0			0	0	
	X-Large	480	12	x	40	0	0			0	0			0	0			0	0	
	XX-Large	840	14	x	60	0	0			0	0			0	0			0	0	
							0				0				0			0		
	Subtotal					0	0			0	0			0	0			0	0	
	Circulation Gross Factor					50%	0			100%	0			100%	0			100%	0	
	Parking Commission Uncovered Parking at Scott Street	SF				0	0			0	0			0	0			0	0	

TRANSIT AGENCIES													
Mountain Line and UDASH													
Completed in 2019	Small	100	10	x	10	0	0		0	0		0	0
	Medium	200	10	x	20	0	0		0	0		0	0
	Large	360	12	x	30	0	0		0	0		0	0
	X-Large	480	12	x	40	0	0		0	0		0	0
	XX-Large	840	14	x	60	0	0		0	0		0	0
						0	0			0			0
	Subtotal					0	0		0	0		0	0
	Circulation Gross Factor					50%	0		100%	0		100%	0
	Program correction for non-Scott Street location.					0	0		0	0		0	0
	Transportation Uncovered Parking at Scott Street	SF				0	0		0	0		0	0
	UNCOVERED PARKING & EQUIPMENT STORAGE	SF					61,320			7,200			8,000
	SITE GROSS FACTOR FOR CIRCULATION, SETBACKS, AND STORM DETENTION	SF							100%	7,200		100%	8,000
	TOTAL	SF					61,320			14,400			16,000
TOTAL SQUARE FEET						61,320		14,400		16,000			
TOTAL ACREAGE						1.41		0.3		0.4			

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	106%
City Population Projection (utilizing County %)	75,516	88,956	93,998

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
YARD & BULK STORAGE

6/30/2021 FINAL

Vehicles, Equipment, and Bulk Storage Needs

6/30/2021 FINAL		2020 Existing			2030 Program			2040 Program		
Vehicles, Equipment, and Bulk Storage Needs										
	Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments

ADMINISTRATION
Administration

	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

City Engineering

From Monte Sipe	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					0	0		0	0		0	0	
	Circulation Gross Factor					50%	0		100%	0		100%	0	
	Admin Cold Storage	SF				0	0		0	0		0	0	

UTILITIES DEPARTMENT
Stormwater

From Marie Noland	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Collections

From Pat Brook	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	

Water

From Jerry Ellis	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	6	5,040	Current = 7,200 total SF of storage	8	6,720	Provide expansion for cold storage needs as the City grows.	10	8,400	Provide expansion for cold storage needs as the City grows.
							0			0			0	
	Subtotal					6	5,040		8	6,720		10	8,400	
	Circulation Gross Factor					50%	2,520		100%	6,720		100%	8,400	
	Utility Operations Cold Storage	SF				6	7,560		8	13,440		10	16,800	

STREETS DEPARTMENT
Streets

From Brian Hensel	Off Site Bulk Storage - Centrally located	43560				1	43,560	Desired to be centrally located within the City	1.5	65,340	Desired to be centrally located within the City	1.5	65,340	Desired to be centrally located within the City
	Off Site Bulk Storage - Centrally located , shared at MRL Park					1	20,800	Desired to be centrally located within the City - Deicer covered storage	1.0	20,800	Desired to be centrally located within the City - Deicer covered storage	1.0	20,800	Desired to be centrally located within the City - Deicer covered storage

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114%
City Population Projection (utilizing County %)	75,516	88,956	93,998 112%

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
YARD & BULK STORAGE
6/30/2021 FINAL
Vehicles, Equipment, and Bulk Storage Needs

6/30/2021 FINAL Vehicles, Equipment, and Bulk Storage Needs			2020 Existing						2030 Program				2040 Program			
			Space Standard		Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments			
	Off Site Bulk Storage - Pattee Canyon Site				3	45,920	Remain in place with new facility	3	45,920	Remain in place with new facility	3	45,920	Remain in place with new facility			
	Off Site Bulk Storage - Upper Mill Creek Site				1	34,000	Remain in place with new facility	1	34,000	Remain in place with new facility	1	34,000	Remain in place with new facility			
	Snow storage		200	x	270	1	54,000	1.50	81,000	Snow storage removal from downtown, could double as detention swale, but would have to be designed for vehicle loading. Also could be moved to the Cemetary or North Reservoir Site.	1.50	81,000	Snow storage removal from downtown, could double as detention swale, but would have to be designed for vehicle loading. Also could be moved to the Cemetary or North Reservoir Site.			
	Off Site Subtraction from Scott Steet Site					(198,280)	Tracked for planning purposes, but not included in total Scott Street Program		(247,060)	Tracked for planning purposes, but not included in total Scott Street Program		(247,060)	Tracked for planning purposes, but not included in total Scott Street Program			
	Unscreened Topsoil		180	x	150	1	27,000	0.00	0	To be elimated entirely	0.00	0	To be elimated entirely			
	Screened Topsoil		153	x	90	1	13,770	0.00	0	To be elimated entirely	0.00	0	To be elimated entirely			
	1" Minus gravel		208	x	230	1	47,840	0.00	0	To be elimated entirely	0.00	0	To be elimated entirely			
	Sweeping Solids Drying Area		20	x	300	1	6,000	1.25	7,500		1.50	9,000				
	Settling pond for sweepings liquid		140	x	100	1	14,000	0.00	0		0.00	0				
	Sanding debris		210	x	80	1	16,800	1.25	21,000	Move to Water/Compost	1.50	25,200				
	Sump/culvert parts storage		60	x	280	1	16,800	0.00	0	To be elimated entirely	0.00	0	To be elimated entirely			
	Covered De-Cant Basin(s)		20	x	50		Currently shared at WWTP. 3 settling ponds, uncovered for drying out wet bulk materials	0.0	0	Expand existing facility at WWTP	0.0	0	Expand existing facility at WWTP			
	Asphalt unscreened millings		120	x	190	1	22,800	1.25	14,250	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	15,390	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Screened Millings		160	x	90	1	14,400	1.25	9,000	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	9,720	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	3" minus rock		68	x	108	1	7,344	1.25	4,590	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	4,957	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Overburden		85	x	190	1	16,150	1.25	10,094	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	10,901	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Sump Rock		70	x	100	1	7,000	1.25	4,375	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	4,725	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	2" Rock		150	x	160	1	24,000	1.25	15,000	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	16,200	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	3/8" chips		100	x	120	1	12,000	1.25	7,500	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	8,100	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Sump re-dig debris		100	x	40	1	4,000	1.25	2,500	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	2,700	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Screen plant processing area		170	x	300	1	51,000	1.25	31,875	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	34,425	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Removal of these components from current operation at Scott Street							(127,684)	Tracked for planning purposes, but not included in total Scott Street Program		(141,318)	Tracked for planning purposes, but not included in total Scott Street Program				
	Asphalt debris		86	x	50	1	4,300	1.25	2,688	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	2,903	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Concrete debris		90	x	30	1	2,700	1.25	1,688	Provides 25% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.	1.35	1,823	Provides 35% growth from 2020. Includes densified storage with average 5ft to 10ft high retaining walls.			
	Traffic barricade storage rack		12	x	90	1	1,080	1.25	1,350		1.35	1,458				
	Sand/salt/chip processing area (mixed by PW)		160	x	140	1	22,400	1.25	28,000	Pad in front of Solid De-Icer Barn	1.35	30,240	Pad in front of Solid De-Icer Barn			
	Liquid De-Icer	50000 gallons	18	x	18	3	7,200	5	1,620	Assume 12ft diameter, 18 ft high = 10,000 gallons each. Spill containment basin included in 18ft wide module	6	1,944	Assume 12ft diameter, 18 ft high = 10,000 gallons each. Spill containment basin included in 18ft wide module			
	Solid De-Icer Shed		55	x	112	1	6,134	1.0	6,160	Move and re-purpose existing Sand Salt Shed	1	6,160	Move and re-purpose existing Sand Salt Shed			
	Deicer delivery unloading area		116	x	65	1	7,540	1.25	9,425	Pad in front of Solid De-Icer Barn	1.35	10,179	Pad in front of Solid De-Icer Barn			
	Asphalt equipment/parts storage		60	x	100	1	6,000	0.00	0	Moved to Covered	0.00	0	Move to Covered?			
	Asphalt equipment cleanout area				0	0	Not yet constructed	1	800	Paved area	1.5	1,200	Paved area			
	Truck Sander and Mag Tank storage				1	7,560	On racks	1.25	9,450	With racks for trucks to back in and unload/store sanders and tanks	1.35	10,206	With racks for trucks to back in and unload/store sanders and tanks			

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040														
			2020 Existing				2030 Projected				2040 Projected			
Missoula County Population and Projections			119,219				140,437 08/24/20 Update from J.				148,397 08/24/20 Update from J.			
Growth Calculation							118%				114%		106%	112%
City Population Projection (utilizing County %)			75,516				88,956				93,998			

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040													
YARD & BULK STORAGE													
6/30/2021 FINAL													
Vehicles, Equipment, and Bulk Storage Needs													
			2020 Existing				2030 Program				2040 Program		
			Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments	
Share this function across all City departments	Covered Fueling	sf per tank (above ground tanks)	750			72,000 Gallons of diesel, 6 tanks at 12K GA. Each. At Water's Building. 80K total capacity. Building is 3600 SF	8	6,000	Growth and expansion for full City use + others? What's the ideal storage needs for diesel and unleaded, other, i.e. B20, E85?		10	7,500	Growth and expansion for full City use + others? What's the ideal storage needs for diesel and unleaded, other, i.e. B20, E85?

Missoula County Population and Projections
Growth Calculation
City Population Projection (utilizing County %)

2030 Projected
140,437 08/24/20 Update from J.
118%
88,956

2040 Projected
148,397 08/24/20 Update from J.
106% 112%
93,998

6/30/2021 FINAL
Vehicles, Equipment, and Bulk Storage Needs

2040 Program

Comments

From Rick Larson	Small	100		10	x	10		0	0			0	0			0	0		
	Medium	200		10	x	20		0	0			0	0			0	0		
	Large	360		12	x	30		0	0			0	0			0	0		
	X-Large	480		12	x	40		0	0			0	0			0	0		
	XX-Large	840		14	x	60		0	0			0	0			0	0		

From Chad Pancake	Small	100	10	x	10	0	0	0	0	0	0	0	0	0
	Medium	200	10	x	20	0	0	0	0	0	0	0	0	0
	Large	360	12	x	30	0	0	0	0	0	0	0	0	0
	X-Large	480	12	x	40	0	0	0	0	0	0	0	0	0
	XX-Large	840	14	x	60	0	0	0	0	0	0	0	0	0
							0		0		0		0	
	Subtotal					20	223,608	34	38,680		39	39,412		
	Circulation Gross Factor					14%	31,305	100%	38,680	Circulation, on-site snow storage, stormwater detention, etc.	100%	39,412	Circulation, on-site snow storage, stormwater detention, etc.	
Streets Yard and Bulk Storage	SF					20	254,913	34	77,360		39	78,824		

From Scot Colwell	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	2	960	Scissor + Crane truck	2	960		2	960	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					2	960		2	960		2	960	
	Circulation Gross Factor					50%	480		100%	960		100%	960	
	Fleet Maintenance Cold Storage	SF				2	1,440		2	1,920		2	1,920	

From David Selvaige	Small	100	10	x	10	0	0		0	0		0	0	
All at 100 Hickory	Medium	200	10	x	20	44	8,800	includes M trucks and Trailers	52	10,400	Projected growth 6 trucks + 2 Trailers	59	11,800	Projected growth 6 trucks + 1 Trailer
	Large	360	12	x	30	21	7,560	Trucks	22	7,920	Projected growth 1 truck	23	8,280	Projected growth 1 truck
	X-Large	480	12	x	40	8	3,840	Trucks	8	3,840		8	3,840	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
	Fuel		10	x	10	1	100	100 Hickory?	2	200	Future Growth, not at Hickory	2	200	
	Pesticides		20	x	10	1	200	100 Hickory?	2	400	Future Growth, not at Hickory	2	400	
	Traffic Control Devices		26	x	22	1	572	100 Hickory?	2	1,144	Future Growth, not at Hickory	2	1,144	
	Subtotal					76	21,072		88	23,904		96	25,664	
	Circulation Gross Factor					155%	32,662	Approximately 55K sf total at Hickory Street, includes Nurseries and Greenhouses.	100%	23,904	Assumes structured storage for bulk materials to become more efficient with space needs	100%	25,664	Assumes structured storage for bulk materials to become more efficient with space needs
Nurseries/Greenhouses/Gravel Yard, Not 100 Hickory					1	21,780	Spreadout: WWTP, other areas?	2	43,560	Future location TBD, maybe WWTP. Approximately 1 acre is needed	2	43,560	Future location TBD, maybe WWTP. Approximately 1 acre is needed	
Rec Equipment Yard					1	24,000	Located at Satellite Facilities	2.75	66,000	Future Growth at Satellite Facilities	2.75	66,000	Future Growth at Satellite Facilities	
									0			0		
	Program correction for non-Scott Street location.							(93)	(157,368)		(101)	(160,888)		
	Parks & Rec Cold Storage	SF				78	99,514		0	0		0	0	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	106%
City Population Projection (utilizing County %)	75,516	88,956	93,998

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
YARD & BULK STORAGE
6/30/2021 FINAL
Vehicles, Equipment, and Bulk Storage Needs

6/30/2021 FINAL		2020 Existing			2030 Program			2040 Program		
Vehicles, Equipment, and Bulk Storage Needs										
Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments	

PARKING COMMISSION DEPARTMENT

From Tiffany Brander	Small	100	10	x	10	0	0		0	0		0	0	
	Medium	200	10	x	20	0	0		0	0		0	0	
	Large	360	12	x	30	0	0		0	0		0	0	
	X-Large	480	12	x	40	0	0		0	0		0	0	
	XX-Large	840	14	x	60	0	0		0	0		0	0	
							0			0			0	
	Subtotal					0	0		0	0		0	0	
	Circulation Gross Factor					50%	0		100%	0		100%	0	
	Parking Commission Cold Storage	SF				0	0		0	0		0	0	

TRANSIT AGENCIES
Mountain Line and UDASH

Completed in 2019	Electrical Substation for BEBs	50,000	200	x	250	0	0		1	50,000		1	50,000	
	Battery Energy Management Building for BEBs	1000	20	x	50	0	0		1	1,000	Stand alone building, stacked batteries, requires XXX fire suppression system for batteries	1	1,000	Stand alone building, stacked batteries, requires XXX fire suppression system for batteries
Potentially share this function across all departments	CDL Training Course	360	200	x	250	0	0		1	50,000	Shared with Public Works?	1	50,000	Shared with Public Works?
Potentially share this function across all departments	Transit Fuel Island						0	From Mountain Line/UDASH 2019 Detailed program		12,400	From Mountain Line/UDASH 2019 Detailed program		12,400	From Mountain Line/UDASH 2019 Detailed program
Potentially share this function across all departments	Transit Wash Bay and Equipment Room						960	From Mountain Line/UDASH 2019 Detailed program		4,755	From Mountain Line/UDASH 2019 Detailed program		4,755	From Mountain Line/UDASH 2019 Detailed program
	Subtotal					0	960		3	118,155		3	118,155	
	Circulation Gross Factor					0%	0		25%	29,539		25%	29,539	
	Program correction for non-Scott Street location.					0	(960)		(3)	(147,694)		(3)	(147,694)	
	Transportation Yard Storage	SF				0	0		0	0		0	0	
	YARD & BULK STORAGE	SF					363,427			92,720			97,544	
	SITE GROSS FACTOR FOR CIRCULATION, SETBACKS, AND STORM DETENTION	SF							100%	92,720		100%	97,544	
	TOTAL	SF					363,427			185,440			195,088	

TOTAL SQUARE FEET	363,427	185,440	195,088
TOTAL ACREAGE	8.34	4.3	4.5

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114%
City Population Projection (utilizing County %)	75,516	88,956	93,998

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
EMPLOYEE AND VISITOR PARKING
6/30/2021 FINAL

Separate Parking from Fleet and Equipment Parking

	Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments
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ADMINISTRATION
Administration

	Employees	200	10	x	20	2	400		2	400		3	600	
	Visitors													

City Engineering

From Monte Sipe	Employees	200	10	x	20	0	0		3	600		4	800	
	Visitors													
	Subtotal					2	400		5	1,000		7	1,400	
	Circulation + Landscaping Gross Factor					50%	200		60%	600		60%	840	
	Admin Employee & Visitor Parking	SF				2	600		5	1,600		7	2,240	

UTILITIES DEPARTMENT
Stormwater

From Marie Noland	Employees	200	10	x	20	7	1,400		9	1,800		11	2,200	
	Visitors													

Collections

From Pat Brook	Employees	200	10	x	20	10	2,000		12	2,400		17	3,400	
	Visitors						0			0			0	

Water

From Jerry Ellis	Employees	200	10	x	20	47	9,400		59	11,750		63	12,690	
	Visitors													
	Subtotal					64	12,800		80	15,950		91	18,290	
	Circulation + Landscaping Gross Factor					50%	6,400		60%	9,570		60%	10,974	
	Utility Operations Employee & Visitor Parking	SF				64	19,200		80	25,520		91	29,264	

STREETS DEPARTMENT
Streets

From Brian Hensel	Employees	200	10	x	20	37	7,400		50	10,000		60	12,000	
	Visitors													

Comm Shop

From Rick Larson	Employees	200	10	x	20	8	1,600		10	2,000		14	2,800	
	Visitors													

Traffic Services

From Chad Pancake	Employees	200	10	x	20	6	1,200		8	1,600		10	2,000	
	Visitors													
	Subtotal					51	10,200		68	13,600		84	16,800	
	Circulation + Landscaping Gross Factor					50%	5,100	Included above	60%	8,160		60%	10,080	
	Streets Employee & Visitor Parking	SF				51	15,300		68	21,760		84	26,880	

FLEET MAINTENANCE DEPARTMENT

From Scot Colwell	Employees	200	10	x	20	11	2,200		13	2,600		15	3,000	
	Drop off repair parking needs	200	10	x	20				10	2,000	Downline parking adjacent to the shop	16	3,200	Downline parking adjacent to the shop
	Drop off repair parking needs	200	10	x	40				4	1,600	Downline parking adjacent to the shop	6	2,400	Downline parking adjacent to the shop
	Subtotal					11	2,200		27	6,200		37	8,600	
	Circulation + Landscaping Gross Factor					50%	1,100		60%	3,720		60%	5,160	
	Fleet Maintenance Employee & Visitor Parking	SF				11	3,300		27	9,920		37	13,760	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114%
City Population Projection (utilizing County %)	75,516	88,956	93,998

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040
EMPLOYEE AND VISITOR PARKING
6/30/2021 FINAL

Separate Parking from Fleet and Equipment Parking

6/30/2021 FINAL		2020 Existing			2030 Program			2040 Program		
Separate Parking from Fleet and Equipment Parking										
Space Standard	Qty	Area	Comments	Qty.	Area	Comments	Qty.	Area	Comments	

PARKS DEPARTMENT

From David Selvage	Employees	200	10	x	20	74	14,800		85	17,000		104	20,800	
	Visitors													
	Subtotal					74	14,800		85	17,000		104	20,800	
	Circulation + Landscaping Gross Factor					50%	7,400		60%	10,200		60%	12,480	
	Program correction for non-Scott Street location.					(74)	(22,200)		(85)	(27,200)		(104)	(33,280)	
	Parks & Rec Employee & Visitor Parking	SF				0	0		0	0		0	0	

PARKING COMMISSION DEPARTMENT

From Tiffany Brander	Employees	200	10	x	20	0	0		0	0		0	0	
	Visitors	200	10	x	20				0	0		0	0	
	Subtotal					0	0		0	0		0	0	
	Circulation + Landscaping Gross Factor					0%	0		60%	0		60%	0	
	Parking Commission Employee & Visitor Parking	SF				0	0		0	0		0	0	

TRANSIT AGENCIES
Mountain Line and UDASH

Completed in 2019	Employee and Visitors	100	10	x	20	36	7,200		147	29,343		166	33,250	
							0			0			0	
	Subtotal					36	7,200		147	29,343		166	33,250	
	Circulation + Landscaping Gross Factor					125%	9,000		100%	29,343	Includes setbacks, storm detention, circulation, etc.	100%	33,250	Includes setbacks, storm detention, circulation, etc.
	Program correction for non-Scott Street location.					(36)	(16,200)		(147)	(58,685)		(166)	(66,500)	
	Transportation Employee & Visitor Parking	SF				0	0	Current site is 16,180 sf	0	0		0	0	
	EMPLOYEE AND VISITOR PARKING	SF				128	38,400		180	58,800		219	72,144	

TOTAL SQUARE FEET	38,400	58,800	72,144
TOTAL ACREAGE	0.88	1.3	1.7

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040																			
Missoula County Population and Projections								2020 Existing				2030 Projected				2040 Projected			
Growth Calculation								119,219				140,437 08/24/20 Update from J.				148,397 08/24/20 Update from J.			
City Population Projection (utilizing County %)								75,516				88,956				93,998			
ADMINISTRATION & OPERATIONS																			
6/30/2021 FINAL								2020 Existing				2030 Program				2040 Program			
Offices, workstations, storage								Staff Area Comments				Staff Area Comments				Staff Area Comments			
ADMINISTRATION																			
Administration																			
	Employees at City Hall			SF/PP	88		2	576	Director - Private Office and Admin Asst - workstation		2	576	Director - Private Office and Admin Asst - workstation		3	696	Director - Private Office and Admin Asst - workstation. Add Deputy Dir at 120 sf		
	Storage at City Hall ?																		
	Employees (Scott Street/Other)			SF/PP															
	Office Space (SF/per person)	230																	
	Storage (Scott Street/Other)																		
Engineering - City Engineering TBD Potentially Admin																			
From Monte Sipe	Employees at City Hall			SF/PP	120		3	360	Currently in 10x12 workstation, prefer private offices										
	Engineering Conference Room at City Hall			14x18	252			252	Up to 10 visitors, 3-5 times per week										
	Employees (Scott Street/Other)			SF/PP	120						3	360	Private Offices to host citizens, 2/3 in office		4	480	Plan for additional Projects Coord		
	Engineering Conference Room			14x20	280							280	Dedicated to Utility Engineering, but can be reserved by others			280	Dedicated to Utility Engineering, but can be reserved by others		
	Subtotal						5	1,188			5	1,216			7	1,456			
	Gross Factor (circulation, structure, utilities)						30%	356			30%	365			30%	437			
	Admin	SF					5	1,544			5	1,581			7	1,893			
UTILITIES DEPARTMENT																			
Stormwater																			
From Marie Noland	Employees at City Hall			SF/PP			0	231			0	231			0	231			
	Storage at City Hall							0				0				0			
	FTE Employees (Scott Street/Other)			SF/PP	150		5	750			7	1,050			9	1,350			
	MCC Member Interns			SF/PP	60		2	120	Seasonal 4-6 months		2	120			2	120			
	Storage (Scott Street/Other)																		
Collections																			
From Pat Brook	Employees at City Hall			SF/PP			0				0				0				
	Storage at City Hall							0				0				0			
	Employees (Scott Street/Other)			SF/PP	150		10	120			12	1,800			17	2,550			
	Storage (Scott Street/Other)			10	x	20		0			1	200			1	200			
Water																			
From Jerry Ellis	Employees at City Hall			SF/PP			0				0				0				
	Storage at City Hall							0				0				0			
	Employees (Scott Street/Other)			SF/PP	150		47	7,743	46 with 1 vacant position		59	8,813	25% Growth from 2020		63	9,518	35% Growth from 2020		
	Dispatch Office			SF/PP	125		0				2	250			2	250			
	SCADA Office			10	x	10		0	0		4	400	Room for 2 technicians + additional for space for 2 more		4	400	Room for 2 technicians + additional for space for 2 more		
	Water Small Conference Room			SF/PP	20		0	0	Included above		8	160	6 to 8 people, Water has a lot of internal meetings, daily		1	0	20 person meetings, daily		
	Safety Training Room			SF/PP	15		0	0	Currently shared with Water Conference Room		49	735	Shared by all of Public Works - Training function		49	735	Shared by all of Public Works - Training function		
	Safety Storage Room			10	x	20		0	0	Currently shared with Water Conference Room	1	200	Shared by all of Public Works - Training function		1	200	Shared by all of Public Works - Training function		
	Subtotal						64	8,964			145	13,959			149	15,554			
	Gross Factor (circulation, structure, utilities)						0%	0	Included above		30%	4,188			30%	4,666			
	Utility Operations	SF					64	8,964			145	18,146			149	20,220			

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118%	114%
City Population Projection (utilizing County %)	75,516	88,956	93,998

6/30/2021 FINAL	2020 Existing			2030 Program			2040 Program		
Offices, workstations, storage	Staff	Area	Comments	Staff	Area	Comments	Staff	Area	Comments

[illegible]

From Rick Larson	Employees at City Hall			SF/PP			0			0			0		
	Storage at City Hall						0			0			0		

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MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040												
				2020 Existing			2030 Projected			2040 Projected		
Missoula County Population and Projections				119,219			140,437 08/24/20 Update from J.			148,397 08/24/20 Update from J.		
Growth Calculation							118%			114%		
City Population Projection (utilizing County %)				75,516			88,956			93,998		
ADMINISTRATION & OPERATIONS												
6/30/2021 FINAL				2020 Existing			2030 Program			2040 Program		
Offices, workstations, storage												
				Staff	Area	Comments	Staff	Area	Comments	Staff	Area	Comments
PARKING COMMISSION DEPARTMENT												
From Tiffany Brander	Employees at 100-128 W. Main St			SF/PP		12	1,490	Includes Scooter Parking		5		Enforcement Officers stay downtown
	Scott Street reconciliation									(5)	0	
	Employees (Scott Street/Other)			SF/PP	150				9	1,350		Administration (combine with other Administration functions, particularly Transportation) and Maintenance
	Storage (Scott Street/Other)			Total SF								See Heated Parking and Covered Parking
	Subtotal					12	1,490		9	1,350		
	Gross Factor (circulation, structure, utilities)					0%	0	Included above	30%	405		
	Program correction for non-Scott Street location.					(12)	(1,490)		(9)	(1,755)		Parking Commission will not live at Scott Street
	Parking Commission	SF				0	0		0	0		
TRANSIT AGENCIES												
Mountain Line and UDASH												
Completed in 2019	Employees at City Hall			SF/PP								
	Storage at City Hall											
	Employees (Scott Street/Other)			SF/PP	66	101	4,447	Current facilities are undersized, Ref. Mountain Line and UDASH 2019 detailed program	185	12,250		Right sized for future growth
	Subtotal					101	4,447		185	12,250		
	Gross Factor (circulation, structure, utilities)					0%	0		0%	0		Included above, Ref. Mountain Line and UDASH 2019 detailed program
	Program correction for non-Scott Street location.					(101)	(4,447)		(185)	(12,250)		
	Transportation	SF				0	0		0	0		
	ADMINISTRATION & OPERATIONS	SF				131	18,893		273	38,023		
TOTAL SQUARE FEET				18,893			38,023			43,951		
TOTAL ACREAGE				0.43			0.9			1.0		

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040													
Missoula County Population and Projections				2020 Existing		2030 Projected				2040 Projected			
Growth Calculation				119,219		140,437 08/24/20 Update from J. 118%				148,397 08/24/20 Update from J. 106%			
City Population Projection (utilizing County %)				75,516		88,956 114%				93,998 112%			

FLEET MAINTENANCE, SHOPS, & STORAGE													
6/30/2021 FINAL													
Maintenance Bays, Shops, Storage													
				2020 Existing			2030 Program			2040 Program			
				Qty	Area	Comments	Qty	Area	Comments	Qty	Area	Comments	

ADMINISTRATION													
Administration													
	Heavy Maintenance Bays												
	Light Maintenance Bays												
	Shops (Welding & Fabrication)												

City Engineering													
From Monte Sipe	Heavy Maintenance Bays												
	Light Maintenance Bays												
	Subtotal				0	0		0	0		0	0	
	Gross Factor (circulation, structure, utilities)				30%	0		40%	0		40%	0	
	Admin	SF			0	0		0	0		0	0	

UTILITIES DEPARTMENT														
Stormwater														
From Marie Noland	Mud Wash Room		8	x	10	1	80	Waterproof flooring, industrial quality sprayer. Installation of a shower stall would be ideal	1	80	Waterproof flooring, industrial quality sprayer. Installation of a shower stall would be ideal	1	80	Waterproof flooring, industrial quality sprayer. Installation of a shower stall would be ideal
	Secured Equipment Storage		10	x	15			Stormwater sampling and testing equipment, coolers, and gear. Must be secured	1	150	Stormwater sampling and testing equipment, coolers, and gear. Must be secured	1.5	225	Stormwater sampling and testing equipment, coolers, and gear. Must be secured
	Equipment Storage		10	x	15			Hand tools, cones, signage, stormwater BMPS	1	150	Hand tools, cones, signage, stormwater BMPS	1.5	225	Hand tools, cones, signage, stormwater BMPS
	Light Maintenance Bays													

Collections														
From Pat Brook	Parts Storage & Shop		20	x	20	0	0		1	400	Welder/grinder/cut off saw/storage	1	400	Welder/grinder/cut off saw/storage

Water														
From Jerry Ellis	Warehouse		50	x	75		2,470	Existing as shown on floor plan, 47' x 53'	1	3,750	Secured. Leak repair parts, corps saddles, up to 30" piping, SCADA parrs, electrical meters, water meters, motors, pumps. Gantry crane needed to load parts into trucks	1.25	4,688	Secured. Leak repair parts, corps saddles, up to 30" piping, SCADA parrs, electrical meters, water meters, motors, pumps. Gantry crane needed to load parts into trucks
	Water Storage		10	x	15				1	150	Secured - PPE and equipment, adjacent to warehouse	1.25	188	Secured - PPE and equipment, adjacent to warehouse
	Water Quality Lab		10	x	15		100	Existing as shown on floor plan	1	150		1.25	188	
	Water Meter Reading and Testing		10	x	20		144	Existing as shown on floor plan	1	200		1.25	250	
	Scada Testing Shop		10	x	15				1	150		1.25	188	
	Field Training Shop		10	x	15				1	150		1.25	188	
	Subtotal					1	2,794		10	5,330		13	6,618	
	Gross Factor (circulation, structure, utilities)					0%	0	Included above	40%	2,132		40%	2,647	
	Utilities Department	SF				1	2,794		10	7,462		13	9,265	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040									
				2020 Existing		2030 Projected		2040 Projected	
Missoula County Population and Projections				119,219		140,437		148,397	
Growth Calculation						118%		106%	
City Population Projection (utilizing County %)				75,516		88,956		93,998	
						114%		112%	

FLEET MAINTENANCE, SHOPS, & STORAGE									
6/30/2021 FINAL									
Maintenance Bays, Shops, Storage									
				2020 Existing		2030 Program		2040 Program	
				Qty	Area	Comments	Qty	Area	Comments

STREETS DEPARTMENT

Streets									
From Brian Hensel	Drive through Wash Bay	200	35	x	90	0	0	Streets: Trucks	
	Chassis Wash Bay	200	25	x	90	0	0	See Fleet Maintenance	
	Tool Storage	200	20	x	30	1	600	Currently stored in a Conex, inadequate	
	Traffic Control Shed	600	95	x	80	1	7,600	Separate shed/structure	
	Shops (General)		20	x	25	1	500	Radial Arm Saw, painting/drying space. Manufacturing area, storage of paint, shelves and locking cabinets for tools, currently inadequate	

Comm Shop									
From Rick Lars	Traffic Control Electronics Shop		11	x	13	1	607	Combines Electronics Parts Room and 2nd floor storage	
	Communications Shop		45	x	50	1	2,714	Compressed air required, good drainage, ability to pull a vehicle into the shop, sealed off from fleet maintenance	
	Radio Equipment Storage		9	x	16	1	608	Combines Electronics Parts Room and 2nd floor storage	

Traffic Services									
From Chad Pancake	Sign Shop		25	x	25	1	625	Includes space for Sign Truck	
	Traffic Services Shop		20	x	40	1	800		
	Heated Bulk Materials		40	x	40	1	1,600		
	Paint Shop and Storage		20	x	20	1	400	Paint/Beads/Equipment	
	Subtotal					10	16,054		
	Gross Factor (circulation, structure, utilities)					30%	4,816		
	Streets	SF				10	20,870		

FLEET MAINTENANCE DEPARTMENT									
	Overall Use of 1305B Scott St. - 38,400 sf					26,740	Overall footprint of what Fleet Maintenance is using	1	0
	Overall Total Area of Level 1					52,200	Includes heated Storage		0
	Deduction for program alignment					(78,940)			
From Scot Colwell	Heavy Maintenance Bays		20	x	60	4	3,200	Existing SF, smaller bays than space standard	6
9 Technicians	Light Maintenance Bays		16	x	40	6	2,028	Existing SF, smaller bays than space standard	9
2 Manager and Asst.	Rebuild Shop - - Comm Shop component		20	x	40	0	0	Included in Comm Shop	0.0
1 Welder	Shops (Welding & Fabrication)		60	x	60	1	2,392	1 Welder, mig , tig, arc, oxy acetylene, lathe, mill, drill press, belt sander, grinders, cutoff saw, band saw, 100 ton hydraulic press, metal storage racks.	1.0
	Tire Storage 1		20	x	60	1	1,200	1 area of Tire Storage, tire racks up agaisn the wall in the shop. Does not include Water's tires. Tires are currently stored up to 16ft high.	2.50
	Tire Storage 2		12	x	100	1	1,200	tire racks up agaisn the wall in the shop. Does not include Water's tires	0
	Tire Shop		30	x	40	1	625	Do all the mounting and demounting	1
	Paint Booth		25	x	60	1	432		1

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040

	2020 Existing	2030 Projected	2040 Projected
Missoula County Population and Projections	119,219	140,437 08/24/20 Update from J.	148,397 08/24/20 Update from J.
Growth Calculation		118% 114%	106% 112%
City Population Projection (utilizing County %)	75,516	88,956	93,998

FLEET MAINTENANCE, SHOPS, & STORAGE
6/30/2021 FINAL
Maintenance Bays, Shops, Storage

			2020 Existing			2030 Program			2040 Program		
			Qty	Area	Comments	Qty	Area	Comments	Qty	Area	Comments
	Paint Kitchen/Storage		10	x	20	0	0	Currently just in paint locker	1	200	Will need to verify Hazardous (H) occupancy and quantities of material being stored.
	Portable Equipment Storage		30	x	40	0	0	Nothing dedicated currently, fit equipment wherever	1	1,200	Dedicated storage
	Parts Room		50	x	100	1	2,500	2 Existing Parts Rooms	2	10,000	Secured, Parts Counter, Parts Clerk, density. Evaluate high density storage options (vertical lift modules, high density pallet racks) in the future to potentially reduce SF needs.
	Lube Room		20	x	50	0	0	Accounted for in Storage	1	1,000	Double walled tanks with containment. Currently storing the following (assume growth to these needs) 5W-20 Engine oil, 130 Gallons 5W-30 Engine oil, 110 Gallons 15W-40 Heavy-duty Diesel engine oil, 165 Gallons, Multi vehicle ATF 165 Gallons, Universal Tractor Hydraulic fluid 250 Gallons, Windshield washer fluid 250 Gallons, Universal Coolant 150 Gallons, Purple Coolant 55 gallons, Blue Coolant 55 gallons, Waste Oil 500 Gallons, Coolant 150 gallons
	Outdoor Parts Storage		8	x	60	2	4,800	2 60 ft Conex boxes	0	0	
	Battery Storage					0	0	Currently just in time delivery	0	0	Continue with just in time delivery
	Chassis Wash Bay		25	x	60	1	1,235		1	1,500	With pits and parallelogram lift
	Chassis Wash Equipment Room		10	x	20	0			1	200	Hotsy + electrical
	Subtotal					19	19,612		28	36,360	
	Gross Factor (circulation, structure, utilities)					74%	14,513		40%	14,544	
	Fleet Maintenance	SF				19	34,125	Existing shop is far undersized for the work that is done and needed.	28	50,904	Right sized shop for 20 year needs

PARKS DEPARTMENT

From David Selva	Storage (at Hickory)		42	x	36	1	1,512	Secure dry storage, fork lift, materials and equipment storage, emergency shower, paper products	1.5	2,268		1.5	2,268	
	Forestry Bay (at Hickory)		24	x	20	1	480	chain saws, pruning equipment, climbing equipment, supplies	1.5	720		1.5	720	
	Shops (Welding & Fabrication) - (at Hickory)		24	x	36	1	864		1.5	1,296		1.5	1,296	
	Mower Bay (at Hickory)		50	x	36	1	1,800		1.5	2,700		1.5	2,700	
						0			0			0		
	Subtotal					4	4,656		6	6,984		6	6,984	
	Gross Factor (circulation, structure, utilities)					0%	0	Included above	40%	2,794		40%	2,794	
	Program correction for non-Scott Street location.					(4)	(4,656)		(6)	(9,778)	Will live at future Parks Facility, not 100 Hickory, nor Scott Street site	(6)	(9,778)	Will live at future Parks Facility, not 100 Hickory, nor Scott Street site
	Parks (at Scott Street)	SF				0	0		0	0		0	0	

PARKING COMMISSION DEPARTMENT

From Tiffany Brander	Shops (Signs, barricades, message boards, landscaping supplies, parking meters, painting, stencils, cleaning equipment storage, daily assignments.)					1	465	Includes Electrical Equipment. Storage is currently spread out across multiple sites. Need Parkplace and Bank Street	1.25	581	Needs at least one computer. Mostly handtools, multiple work benches (at least 3), Shelving and storage.	1.25	581	Needs at least one computer. Mostly handtools, multiple work benches (at least 3)
	Subtotal					1	465		1	581		1	581	
	Gross Factor (circulation, structure, utilities)					0%	0	Included above	40%	233		40%	233	
	Program correction for non-Scott Street location.					(1.00)	(465)		(1.25)	(814)	Parking Commission will not live at Scott Street	(1.25)	(814)	Parking Commission will not live at Scott Street
	Parking Commission	SF				0	0		0	0		0	0	

MISSOULA PUBLIC WORKS PROGRAM, 2020 - 2040																
				2020 Existing				2030 Projected				2040 Projected				
Missoula County Population and Projections				119,219				140,437 08/24/20 Update from J.				148,397 08/24/20 Update from J.				
Growth Calculation								118%				114%				
City Population Projection (utilizing County %)				75,516				88,956				93,998				
FLEET MAINTENANCE, SHOPS, & STORAGE																
6/30/2021 FINAL				2020 Existing				2030 Program				2040 Program				
Maintenance Bays, Shops, Storage				Qty	Area	Comments		Qty	Area	Comments		Qty	Area	Comments		
TRANSIT AGENCIES																
Mountain Line and UDASH																
Completed in 2019	Offices + Shared Areas					9	391	From Mountain Line/UDASH 2019 Detailed program		25	1,445	From Mountain Line/UDASH 2019 Detailed program		30	1,463	From Mountain Line/UDASH 2019 Detailed program
	Offices + Shared Areas Gross Factor	35%					137	From Mountain Line/UDASH 2019 Detailed program			506	From Mountain Line/UDASH 2019 Detailed program			512	From Mountain Line/UDASH 2019 Detailed program
	Transit Maintenance Bays						3,540	60 Buses - From Mountain Line/UDASH 2019 Detailed program			10,935	90 Buses - From Mountain Line/UDASH 2019 Detailed program			12,035	108 Buses, includes 10 Artics - From Mountain Line/UDASH 2019 Detailed program
	Maintenance Bays Gross Factor	35%					1,239	From Mountain Line/UDASH 2019 Detailed program			3,827	From Mountain Line/UDASH 2019 Detailed program			4,212	From Mountain Line/UDASH 2019 Detailed program
	Maintenance Shops/Support/Storage						1,084	60 Buses - From Mountain Line/UDASH 2019 Detailed program			5,925	90 Buses - From Mountain Line/UDASH 2019 Detailed program			5,925	108 Buses, includes 10 Artics - From Mountain Line/UDASH 2019 Detailed program
	Shops/Support/Storage Gross Factor	35%					379	From Mountain Line/UDASH 2019 Detailed program			2,074	From Mountain Line/UDASH 2019 Detailed program			2,074	From Mountain Line/UDASH 2019 Detailed program
	Subtotal					9	6,770			25	24,711			30	26,221	
	Gross Factor (circulation, structure, utilities)					30%	2,031			50%	12,356			50%	13,111	
	Program correction for non-Scott Street location.					(9)	(8,801)			(25)	(37,067)			(30)	(39,332)	
	Transportation (at Scott Street)	SF				0	0			0	0			0	0	
	MAINTENANCE TOTAL	SF					57,789				94,555				108,828	
TOTAL SQUARE FEET				57,789				94,555				108,828				
TOTAL ACREAGE				1.33				2.2				2.5				

APPENDIX 2:
Design2thrive Goals and Metrics

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MISSOULA PUBLIC WORKS NEW OPERATIONS AND MAINTENANCE FACILITY
Sustainability Goals, Metrics and Strategies

Draft: 07.28.2020



Utilizing Stantec's design2thrive framework: The following documents the goals that rose to the top of the discussion during the design2thrive charrette with City employees. Not all design2thrive criteria require specific goals.

WELLBEING				
#1 Priority				
POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Become the employer of choice in Missoula Increase employee retention and recruitment Promote PW culture and cross-workgroup camaraderie and health	Meet LEED daylight criteria in 75% of regularly occupied spaces. Provide views to exterior in 75% of regularly occupied spaces	Biophilic Design: Daylit spaces through all offices and shops	COVID-19 impacts have really reduced camaraderie and employee recognition	Integrate an overall table into program report for Daylighting considerations
		Biophilic Design: Connect to the natural surroundings with views to the exterior from interior	Integrate design strategies from Parks' Currant Aquatics Center (Views of Fish jumping/birds diving, no artificial lighting needs during daytime hours (examples, from CAC))	Building orientation(s) for mountain and valley views
		Provide operable windows where practical (see Resiliency, below)		
	Provide flexible spaces to accommodate XX people	Flexible spaces large enough for full integration of PW staff	COVID-19 impacts and cleaning operations	Crockpot Alley Outdoor areas BBQs/Potlucks and big meetings
		Flexible training spaces	Current PW facilities don't easily support employee gathering events	Large group training events (20-30 people) are fairly frequent 75-100 people maybe 6X per year 8-12 people meetings daily A/V flexibility
	Provide outdoor green space for physical and mental break, capable of accommodating 25% of full-time staff	Provide fitness opportunities - indoor or outdoor	Dedicated walking loop on site External patio/landscaped area adjacent to break rooms	Integrate space needs, and create adjacencies, between spaces for physical breaks with those for social events (BBQs) to accommodate more people External patio/landscaped area adjacent to break rooms
		Provide space for physical therapy opportunities	Repetitive injuries are common with Parks	Flexible space identified for on-site physical therapy from 3rd party vendor
		Consider green roof (see Ecosystems, below)	How many man hours are lost annually because of workplace injuries?	
		Create functional and useful exterior 'rooms' (advance the mission of the Wellness goal).	Parks does have access to the outdoors for meetings which is used frequently.	
		Provide access to outdoors from main lunch/training room.	Current PW facilities does not have any greenspace for employees	Discuss during programming to understand full time on site employees as a % of the overall total.
		Utilize large operable doors for walls	An outdoor area would be nice, but does not have to sized for the full staff load	
		Evaluate a courtyard concepts to reduce yard and traffic noise	Streets spends most of their time in the field, but sometimes come back for lunch.	

ELEMENTS

#2 Priority

POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Meet City of Missoula 2030 Clean Energy Goals Progress towards City of Missoula 2035 Carbon Neutrality Goals	100% Electric Facilities and Fleet by 2030 Onsite renewables (PV and/or wind) to meet XX% of total energy demand Electric vehicle charging for XX% of fleet Recycle XX% of grey water for irrigation/bus wash	Net-Zero is potentially a goal for this project, either ready or from day 1	This building is going to potentially last for 100 years, so ignoring carbon emissions is not an option Renewable energy is important to this project. Net-Zero is potentially a goal for this project, either ready or from day 1 Energy efficiency is also important	Discuss City-wide effort with Chase Jones, Sustainability and Climate Champion Define PV roof area. Canopy roof area PV potential Engage commissioning agent
		Ground Source Heat Pumps (closed or open loop)	Missoula aquifer is very robust with a high water table. GSHP are a proven and effective heating/cooling option in Missoula	Identify in potential in final report so this does not get lost
		Transition to ZEB fleet, a current discussion topic within the City	Electric & potentially hydrogen	Mountain Line's Goal = zero emissions by 2035
		Promote shared electric vehicles	Vehicle share/mode split option within the City for carpooling	Current + full fleet growth numbers, phaseable where necessary
		Methanol recapture from Republic Services- Potential for large/heavy vehicles to be methane/propane powered	Commute to work (bicycle, walking, transit) will depend on the location of the facility	Shared City bike program?
			Balance large vehicles with small vehicles	Discuss during programming, is this even an option for these vehicles?
			Currently this flamed off/vented. Instead could be captured to fuel vehicles.	Identify in potential in final report so this does not get lost
		Promote water conservation and reclamation	Recycled water could be an option	Identify in potential in final report so this does not get lost
			Water laws will not impact ability to capture rainwater/snow melt	Identify in potential in final report so this does not get lost
		Looking to acquire the old Federal Building downtown - portion of PW staff could end up in that building.	Who goes to a Maintenance Facility? Who goes into an office building?	Discuss during programming, what's the potential for work from home to continue long-term?
Right size Scott Street M&O Facility for the future workforce, future operations	Flexible work spaces for XX% of regular Admin staff	Define full time and part-time facility located employees - Utilize data from the pandemic to help define true needs of a new office space	Organization of people through spaces will be critical	Discuss during programming
		Define % of Admin vs. Operations staff that would be located at each site	Break out space of how people work and collaborate together	
		Strive to create multi-disciplinary teams - Integrate multiple departments within operations	COVID-19 is recreating the way we do business in the office	Discuss during programming
		Align location with access to public transit, affordable housing and child care	Affordable housing is a challenge within the community, the Scott St. site does not have a lot of transportation options.	
			Access to child care is important, because if it's not convenient then people will not go out of their way to use alternative transportation	

RESILIENCY				
#3 Priority				
POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Increase Facility Resiliency to Flooding, Pandemics and Peak Demand Charges	Design to 100yr flood potential Provide XXhrs on-site energy storage XX% Savings in peak demand charges	Increased air quality is a priority. implement high levels of filtration, provide operable windows where practical	Wildfire smoke is an issue in Missoula which affects indoor air quality	Define need for Potentially 100% turnover in programming report
		Critical Facility - 24 hour crews in winter	24/7 access required	Bunkhousing/food storage could be an option to consider
		Provide on-site PPE storage capabilities	Balance immediate + emergency storage needs, both PPE and energy storage	Discuss during programming: Quantity and types of required PPE storage and desired duration before re-supply is required
		Prevent frequent Missoula area flooding from affecting the selected site(s) to ensure crews are ready and capable of responding to these events. around Missoula	Each department has a specific role during flood events	Discuss during programming: Sand bag storage on site?
				Other emergency storage needs?
		Alternative MEP systems design potential	Could push towards a low-voltage design	Discuss during programming. Could be a phased structure over time, but needs space allocation
		Energy management building/structure especially for large electric fleet	Limited on how much renewable energy can be fed back to the grid Backup power for electric vehicles	
		Communication systems	Antennae location and clear lines of site with the adjacent mountains	
		All electric radiant system potential		
		Ground source heat pump system is a great option to consider	60 ft water table average across the City, but varies substantially across the valley.	Open vs. Closed system benefits
		Building commissioning - needs to be discussed as a requirement for this project		
		Building Systems - needs to discussed with Central Services (staff of 2)	They also pay the utility bills	Need to schedule a review meeting prior to final draft report for big picture MEP vision
		City-wide utility rate structure	Mountain Line in discussion with Northwestern Energy about a transit focuses rate structure Eliminate peak demand charges is the goal	

MATERIALS				
#4 Priority (Tie)				
POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Build Local, Build to Last: Minimize potential impacts of this facility to the surrounding residences and prioritize locally sourced materials	Design for a 50yr facility Use XX% locally-sourced materials for structure, sub-structure	Clearly define lifespan expectations	Surrounded by existing and future residential	Executive summary narrative
		Identify long life potential local materials and products available	Mass Timber CLT construction is being utilized in newer construction around Missoula	Report narrative/table of established local industries
		Identify options to reduce carbon emissions from concrete	Missoula Concrete has been a great resource for projects across the City Local rock &/or 100% flyash and recycled glass aggregates	
		Structural steel frame with cladding vs. load bearing precast	Changing the envelope at a later date is one of the most difficult elements to change - invest in a high-performance envelope to avoid major reconstruction efforts at a later date.	
		Learn and utilize information from recent local projects	Missoula Federal Credit Union - Russel Street Branch	Potential recent project examples for final report
			UM College of Conservation and Forestry Missoula Fish Wildlife Parks Regional Headquarters under construction	

ECOSYSTEMS				
#4 Priority (Tied)				
POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Support Climate Ready Missoula Urban Heat Island Goals	Green Roof over XX% of roof area	Green Roof: carry out life-cycle cost benefits, include soft costs of employee health, retention	Stockmans Bank has a partial green roof	Potential imagery for final report.
Support Parks and Recreation by providing a Green Experience for all PW staff			Occupiable roofs in Missoula have incredible views, separates you from traffic noise, heat, reduces urban heat island effect	
	Achieve XX% green space on site	See notes under 'Wellbeing' above.	See notes under 'Wellbeing' above.	See notes under 'Wellbeing' above.

VISION				
#5 Priority				
POTENTIAL GOALS	METRICS	STRATEGIES	D2T CHARRETTE DISCUSSION	PROGRAM CONSIDERATIONS
Right Size, Right Look	Achieve the identified sustainability goals within the public works budget	Incorporate Life Cycle Costs into the development of this project to show efficient use of taxpayer funding	Citizens don't like to spend property taxes on nice facilities for public employees	Carry out life-cycle energy cost analysis to prove long-term benefits
			This facility needs to be seen as an appropriate use of tax payer funds, while meeting these goals that we're defining today.	
			Everything we do has to have more than one job and have the ability to be multi-purposed	
	Include one flexible space for public use (e.g. public meetings, events)	Design in flexibility around all non-essential hard walled functions Promote use by the general public for off hours meeting space, partnerships with local non-profits and other groups	Maximize the ability for the local contractor workforce to construct this facility	Identify flexible needs and potential

APPENDIX 3:

Potential Partnerships Meetings - Summaries

Missoula County Public Works Department

Brian Hensel (Public Works) and John Wells (MMW) met with Shane Stack, Missoula County Public Works Director.

During the first meeting Brian and John described the potential synergy of co-locating. Shane subsequently met with the County Commissioners and there was a follow up meeting. Shane reported that the County did not see where the benefits of relocating would outweigh the costs. The County stressed that the door was open, and the County would be willing to discuss further, should more and better opportunities unfold, but based on the information currently available, they were not seeing any short or long-term benefits of moving to Scott Street.

Missoula Urban Transportation District

Jeremy Keene (Public Works), John Wells (MMW) and Peter Walker-Keleher (DJA) met with Corey Aldridge (MUTD)

MUTD was very receptive to the vision of co-locating in the Scott Street area. MUTD's chief concern was if there would be enough site available. Their sense was that even by combining some facilities, MUTD would need eight to ten acres dedicated for their use. They are very willing to explore opportunities to co-locate as the process unfolds.

The preferred master plan has been shared with MUTD along with some potential revisions to their current space needs program that could make the MRL and Republic owned parcels an option for MUTD (if these parcels could be acquired by MUTD). Follow up meeting(s) to discuss this with MUTD leadership are currently underway. Potential shared facilities could include employee parking, fueling and wash facilities.

Montana Department of Transportation

Brian Hensel, Katie Emery (Public Works), John Wells (MMW), and Ed Toavs (Jacobson Engineering) met with Bob Vosen, District Administrator of Montana Department of Transportation.

Bob reported that MDT is very interested in co-locating. The two chief concerns are timing and how much land is available. Timing: With a new State/MDT leadership in place, their interest in proceeding would have to be ascertained. Pending the State's interest in proceeding, any move and costs to relocate would require approval from the State legislature, which is a multi-year process. Bob also did not foresee MDT being able to move until an interstate exchange is completed in the area. Available land: In Bob's estimation, MDT has enough unique needs to require 10 to 12 acres.

Montana Rail Link

John Engen (City Mayor), Brian Hensel, Katie Emery (Public Works), John Wells (MMW) and Ed Toavs (Jacobson Engineering) met with Derek Ollmann, MRL President, and Ross Lane, MRL VP.

The City/consultant team presented the opportunities and benefits of co-locating and discussed the possibilities of reconfiguring land ownership to benefit all parties. All agreed that there was not much overlap in needs and collocating beyond parking was not likely. Derek noted that MRL required a presence in the area to support parking for the rail maintenance building in the area. Derek noted MRL is open to discussing any concrete proposals the City has moving forward and could see a potential for a land swap/reconfiguration as long as MRL's needs are addressed.

The preferred master plan does include 20 parking spaces for MRL perpendicular to the new 90 ft. ROW truck route. For the moment, this is symbolic in nature and the exact location and quantity of spaces required will be coordinated with MRL in future phases.

Republic Services

John Engen, Jeremy Keene, Brian Hensel, and John Wells met with the Don Moss, GM-Southern Montana, Republic Services, Special Waste Manager, Republic Services, and Chad Bauer, Municipal Market Manager, Republic Services

The representatives of Republic Services indicated that they were receptive to looking at cooperative agreements moving forward as plans developed, building on existing agreements. The general sense was that there would be a few specific facilities Republic Services could share with Public Works; potentially parking, offices and equipment washing. Unfortunately, Republic Services was non-responsive to multiple follow-up phone calls and e-mails from the consultant. It will likely take direct contact from high-level City administration to elicit a response. Based on communication outside of this project, there is potential that the land Republic Services owns adjacent to the City's land at Scott Street may be available for purchase.

Zip Beverage

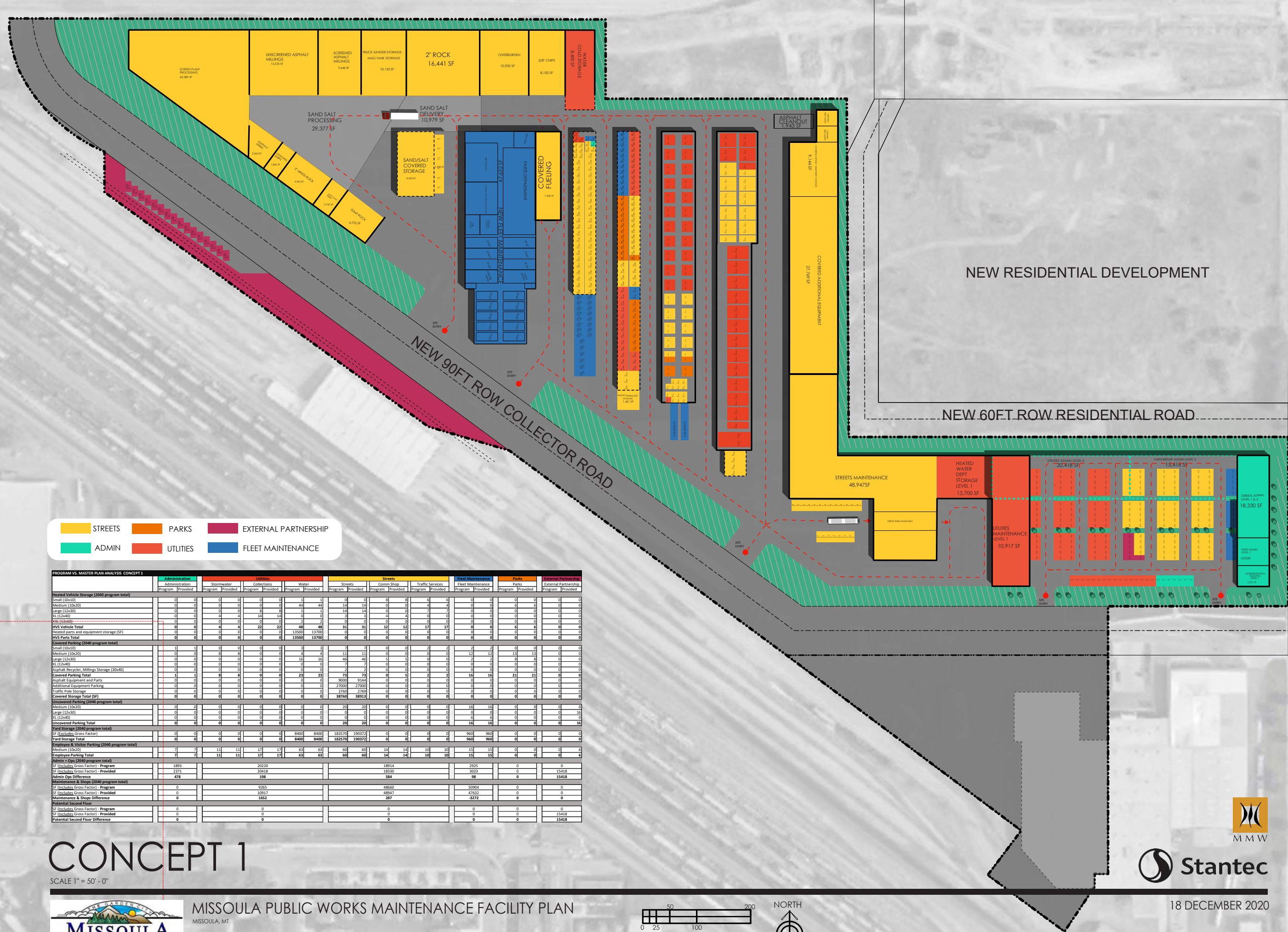
Brian Hensel, Donna Gaukler (Parks and Rec), and John Wells met with Bill Watkins, owner of Zip Beverage.

Bill expressed an interest in purchasing parts of the City's Scott Street property, should the City be interested. Bill also said he would look at sharing an equipment wash facility but would have to know more about costs and management of the facility.

The preferred master plan utilizes the City's existing Fleet Maintenance building for the same purpose. The footprint of the City's portion of the building is large enough to meet Fleet's expansion needs, thus eliminating the need to construct a new Fleet Maintenance facility.

APPENDIX 4:
Alternative Conceptual Master Plans

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STREETS

PARKS

EXTERNAL PARTNERSHIP

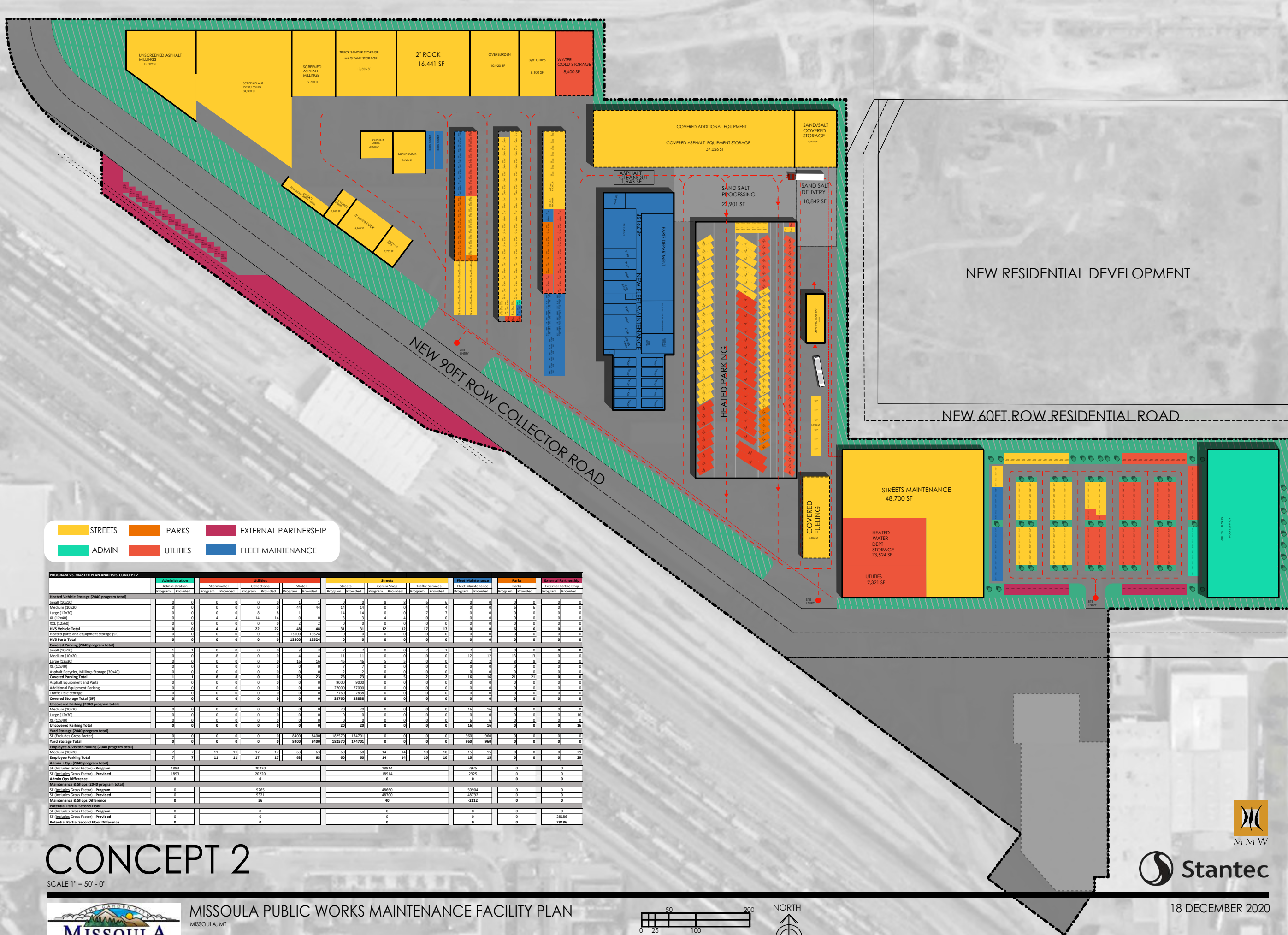
ADMIN

UTILITIES

FLEET MAINTENANCE

PROGRAM VS. MASTER PLAN ANALYSIS CONCEPT 1																		
	Administration		Utilities				Streets		Streets		Traffic Services		Fleet Maintenance		Parks		External Partnership	
	Program	Provided	Program	Provided	Collections	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	
Heated Vehicle Storage (2040 program total)																		
Small (10x10)	0	0	0	0	0	0	1	1	0	0	8	8	6	6	0	0	0	0
Medium (10x20)	0	0	0	0	0	0	44	44	14	14	0	0	4	4	0	0	6	6
Large (12x30)	0	0	0	0	0	0	8	8	1	1	14	14	0	0	7	7	0	0
XL (12x40)	0	0	4	4	14	14	0	0	3	3	4	4	0	0	0	0	0	0
XXS (2x60)	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
MHS Vehicle Total	0	0	4	4	22	22	48	48	31	31	12	12	17	17	0	0	6	6
Heated parts and equipment storage (SF)	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0
MHS Parts Total	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0
Covered Parking (2040 program total)																		
Small (10x10)	1	1	0	0	0	0	3	3	7	7	0	0	2	2	2	2	0	0
Medium (10x20)	0	0	0	0	0	0	4	4	11	11	0	0	0	0	12	12	13	13
Large (12x30)	0	0	0	0	0	0	16	16	46	46	5	5	0	0	2	2	8	8
XL (12x40)	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0
Asphalt Recycler, Millings Storage (30x40)	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
Covered Parking Total	1	1	0	0	0	0	23	23	73	73	5	5	2	2	16	16	23	23
Asphalt Equipment and Parts	0	0	0	0	0	0	0	0	9000	9144	0	0	0	0	0	0	0	0
Additional Equipment Parking	0	0	0	0	0	0	0	0	27000	27000	0	0	0	0	0	0	0	0
Traffic Pole Storage	0	0	0	0	0	0	0	0	2760	2769	0	0	0	0	0	0	0	0
Covered Storage Total (SF)	0	0	0	0	0	0	0	0	34760	34913	0	0	0	0	0	0	0	0
Uncovered Parking (2040 program total)																		
Small (10x10)	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	0
Medium (10x20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Large (12x30)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XL (12x40)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uncovered Parking Total	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	0
Yard Storage (2040 program total)																		
SF (Excludes Gross Factor)	0	0	0	0	0	0	8400	8400	182570	190372	0	0	0	0	960	960	0	0
Yard Storage Total	0	0	0	0	0	0	8400	8400	182570	190372	0	0	0	0	960	960	0	0
Employee & Visitor Parking (2040 program total)																		
Medium (10x20)	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0
Employee Parking Total	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0
Admin + Ops (2040 program total)																		
SF (Includes Gross Factor) - Program	1893														2925		0	0
SF (Includes Gross Factor) - Provided	2371														3023		0	15418
Admin Ops Difference	478														98		0	15418
Maintenance & Shops (2040 program total)																		
SF (Includes Gross Factor) - Program	0						9265				48660				50904		0	0
SF (Includes Gross Factor) - Provided	0						10917				48947				47632		0	0
Maintenance & Shops Difference	0						1652				287				-3272		0	0
Potential Second Floor																		
SF (Includes Gross Factor) - Program	0										0				0		0	0
SF (Includes Gross Factor) - Provided	0										0				0		0	15418
Potential Second Floor Difference	0						0				0				0		0	15418





STREETS

PARKS

EXTERNAL PARTNERSHIP

ADMIN

UTILITIES

FLEET MAINTENANCE

PROGRAM VS. MASTER PLAN ANALYSIS CONCEPT 2																			
	Administration		Stormwater		Utilities		Water	Streets		Traffic Services		Fleet Maintenance		Parks		External Partnership			
	Administration Program	Administration Provided	Stormwater Program	Stormwater Provided	Utilities Program	Utilities Provided		Streets Program	Streets Provided	Comm Shop Program	Comm Shop Provided	Traffic Services Program	Traffic Services Provided	Fleet Maintenance Program	Fleet Maintenance Provided	Parks Program	Parks Provided	External Partnership Program	External Partnership Provided
Heated Vehicle Storage (2040 program total)																			
Small (10x10)		0	0	0	0	0	0	1	1	0	0	8	8	6	6	0	0	0	0
Medium (10x20)		0	0	0	0	0	0	44	44	14	14	0	4	4	0	0	6	6	0
Large (12x30)		0	0	0	0	0	0	3	3	14	14	0	7	7	0	0	0	0	0
XL (12x40)		0	0	0	0	14	14	0	0	3	3	4	4	0	0	0	0	0	0
XXL (12x60)		0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
HVS Vehicle Total		0	0	4	4	22	22	48	48	31	31	12	12	17	17	0	6	6	0
Heated parts and equipment storage (SF)		0	0	0	0	0	0	13500	13524	0	0	0	0	0	0	0	0	0	0
HVS Parts Total		0	0	0	0	0	0	13500	13524	0	0	0	0	0	0	0	0	0	0
Covered Parking (2040 program total)																			
Small (10x10)		1	1	0	0	0	0	3	3	7	7	0	2	2	2	2	0	0	0
Medium (10x20)		0	0	8	8	0	0	4	4	11	11	0	12	12	13	13	0	0	0
Large (12x30)		0	0	0	0	0	16	16	46	46	0	0	2	2	8	8	0	0	0
XL (12x40)		0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0
Asphalt Recycler, Millings Storage (30x40)		0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
Covered Parking Total		1	1	8	8	0	0	23	23	73	73	0	16	16	21	21	0	0	0
Asphalt Equipment and Parts		0	0	0	0	0	0	0	0	9000	9000	0	0	0	0	0	0	0	0
Additional Equipment Parking		0	0	0	0	0	0	0	0	27000	27000	0	0	0	0	0	0	0	0
Traffic Pole Storage		0	0	0	0	0	0	0	0	2760	2838	0	0	0	0	0	0	0	0
Covered Storage Total (SF)		0	0	0	0	0	0	0	0	38760	38838	0	0	0	0	0	0	0	0
Uncovered Parking (2040 program total)																			
Medium (10x20)		0	0	0	0	0	0	0	0	20	20	0	0	16	16	0	0	0	0
Large (12x30)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
XL (12x40)		0	0	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0
Uncovered Parking Total		0	0	0	0	0	0	0	0	20	20	0	0	16	16	0	0	0	16
Yard Storage (2040 program total)																			
SF (Excludes Gross Factor)		0	0	0	0	0	0	8400	8400	182570	174701	0	0	960	960	0	0	0	0
Yard Storage Total		0	0	0	0	0	0	8400	8400	182570	174701	0	0	960	960	0	0	0	0
Employee & Visitor Parking (2040 program total)																			
Medium (10x20)		7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0
Employee Parking Total		7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0
Admin + Ops (2040 program total)																			
SF (Includes Gross Factor) - Program		1893					20220					18914		2925		0		0	
SF (Includes Gross Factor) - Provided		1893					20220					18914		2925		0		0	
Admin Ops Difference		0					0					0		0		0		0	
Maintenance & Shops (2040 program total)																			
SF (Includes Gross Factor) - Program		0					9365				48660		50904		0		0		
SF (Includes Gross Factor) - Provided		0					9321				48700		48792		0		0		
Maintenance & Shops Difference		0					44				40		-2112		0		0		
Potential Partial Second Floor																			
SF (Includes Gross Factor) - Program		0					0				0		0		0		0		0
SF (Includes Gross Factor) - Provided		0					0				0		0		0		0		23186
Potential Partial Second Floor Difference		0					0				0		0		0		0		23186

CONCEPT 2

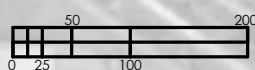
SCALE 1" = 50' - 0"



MISSOULA PUBLIC WORKS MAINTENANCE FACILITY PLAN

MISSOULA, MT

Stantec Project Number: 2270463901



18 DECEMBER 2020





STREETS

PARKS

EXTERNAL PARTNERSHIP

ADMIN

UTILITIES

FLEET MAINTENANCE

PROGRAM VS. MASTER PLAN ANALYSIS - CONCEPT 3	Administration		Stormwater		Utilities		Water		Streets		Streets		Traffic Services		Fleet Maintenance		Parks		External Partnership	
	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided	Program	Provided
Heated Vehicle Storage (2040 program total)																				
Small (10x10)	0	0	0	0	0	0	1	1	0	0	8	8	0	0	0	0	0	0	0	0
Medium (10x20)	0	0	0	0	0	0	44	44	14	14	0	0	4	4	0	0	6	6	0	0
Large (12x30)	0	0	0	0	8	8	1	1	14	14	0	0	7	7	0	0	0	0	0	0
XL (12x40)	0	0	4	4	14	14	0	0	3	3	4	4	0	0	0	0	0	0	0	0
XXL (12x60)	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
HVS Vehicle Total	0	0	4	4	22	22	48	48	31	31	12	12	17	17	0	0	6	6	0	0
Heated parts and equipment storage (SF)	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0	0	0
HVS Parts Total	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0	0	0
Covered Parking (2040 program total)																				
Small (10x10)	1	1	0	0	0	0	3	3	7	7	0	0	2	2	2	2	0	0	0	0
Medium (10x20)	0	0	8	8	0	0	4	4	12	11	0	0	0	0	12	12	13	13	0	0
Large (12x30)	0	0	0	0	0	0	16	16	46	46	5	5	0	0	2	2	8	8	0	0
XL (12x40)	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0
Asphalt Recycler, Millings Storage (30x40)	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
Covered Parking Total	1	1	8	8	0	0	23	23	73	73	0	5	2	2	16	16	21	21	0	0
Asphalt Equipment and Parts	0	0	0	0	0	0	0	0	9000	8800	0	0	0	0	0	0	0	0	0	0
Additional Equipment Parking	0	0	0	0	0	0	0	0	27000	27000	0	0	0	0	0	0	0	0	0	0
Traffic Rule Storage	0	0	0	0	0	0	0	0	2760	2760	0	0	0	0	0	0	0	0	0	0
Covered Storage Total (SF)	0	0	0	0	0	0	0	0	38760	38560	0	0	0	0	0	0	0	0	0	0
Uncovered Parking (2040 program total)																				
Medium (10x20)	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	0	0	0
Large (12x30)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
XL (12x40)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uncovered Parking Total	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	0	0	16
Yard Storage (2040 program total)																				
SF (Excludes Gross Factor) - Program	0	0	0	0	0	0	8400	8400	182570	187288	0	0	0	0	960	960	0	0	0	0
Yard Storage Total	0	0	0	0	0	0	8400	8400	182570	187288	0	0	0	0	960	960	0	0	0	0
Employee & Visitor Parking (2040 program total)																				
Medium (10x20)	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0	0	29
Employee Parking Total	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	0	0	29
Admin + Ops (2040 program total)																				
SF (Includes Gross Factor) - Program	1893				20220										2925		0		0	
SF (Includes Gross Factor) - Provided	1893				20220										2925		0		0	
Admin Ops Difference	0				0										0		0		0	
Maintenance & Shops (2040 program total)																				
SF (Includes Gross Factor) - Program	0				9365										50904		0		0	
SF (Includes Gross Factor) - Provided	0				9321										45235		0		0	
Maintenance & Shops Difference	0				56										-5669		0		0	
Potential Partial Second Floor																				
SF (Includes Gross Factor) - Program	0				0										0		0		0	
SF (Includes Gross Factor) - Provided	0				0										0		0		28186	
Potential Partial Second Floor Difference	0				0										0		0		-28186	

CONCEPT 3

SCALE 1" = 50' - 0"



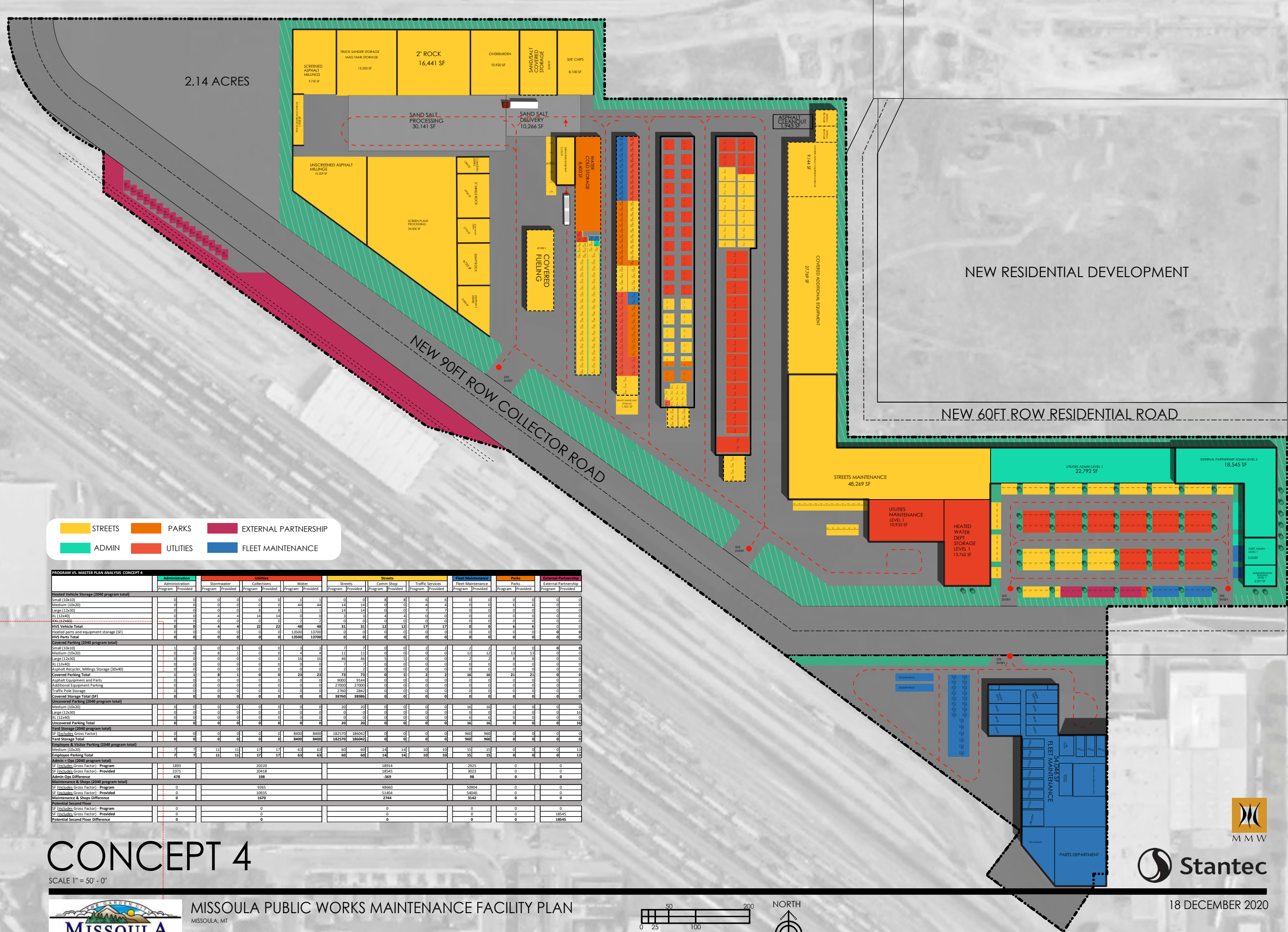
MISSOULA PUBLIC WORKS MAINTENANCE FACILITY PLAN

MISSOULA, MT

Stantec Project Number: 2270463901



18 DECEMBER 2020



STREETS

PARKS

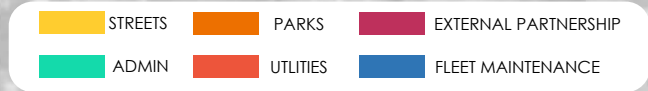
EXTERNAL PARTNERSHIP

ADMIN

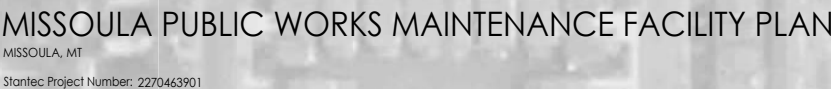
UTILITIES

FLEET MAINTENANCE

PROGRAM VS. MASTER PLAN ANALYSIS CONCEPT 4																				
	Administration		Utilities				Streets		Streets		Traffic Services		Fleet Maintenance		Parks		External Partnership			
	Administration Program	Provided	Stormwater Program	Provided	Collections Program	Provided	Water Program	Provided	Streets Program	Provided	Comm Shop Program	Provided	Traffic Services Program	Provided	Program	Provided	Program	Provided		
Heated Vehicle Storage (2040 program total)																				
Small (10x10)	0	0	0	0	0	0	1	1	0	0	8	8	6	6	0	0	0	0		
Medium (10x20)	0	0	0	0	0	0	44	44	14	14	0	0	4	4	0	0	6	6		
Large (12x30)	0	0	0	0	8	8	1	1	14	14	0	0	7	7	0	0	0	0		
XL (12x40)	0	0	0	4	14	14	0	0	3	3	4	4	0	0	0	0	0	0		
XXL (12x60)	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0		
HVS Vehicle Total	0	0	0	4	22	22	48	48	31	31	12	12	17	17	0	0	6	6		
Heated parts and equipment storage (SF)	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0		
HVS Parts Total	0	0	0	0	0	0	13500	13700	0	0	0	0	0	0	0	0	0	0		
Covered Parking (2040 program total)																				
Small (10x10)	1	1	0	0	0	0	3	3	7	7	0	0	2	2	2	2	0	0		
Medium (10x20)	0	0	8	1	0	0	4	4	11	11	0	0	0	0	12	12	13	13		
Large (12x30)	0	0	0	0	0	0	16	16	46	46	5	5	0	0	2	2	8	8		
XL (12x40)	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0		
Asphalt Recycler, Millings Storage (30x40)	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0		
Covered Parking Total	1	1	8	1	0	0	23	23	73	73	0	0	2	2	16	16	21	21		
Asphalt Equipment and Parts	0	0	0	0	0	0	0	0	9000	9144	0	0	0	0	0	0	0	0		
Additional Equipment Parking	0	0	0	0	0	0	0	0	27000	27000	0	0	0	0	0	0	0	0		
Traffic Pole Storage	0	0	0	0	0	0	0	0	2760	2842	0	0	0	0	0	0	0	0		
Covered Storage Total (SF)	0	0	0	0	0	0	0	0	38760	38966	0	0	0	0	0	0	0	0		
Uncovered Parking (2040 program total)																				
Medium (10x20)	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	0		
Large (12x30)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16		
XL (12x40)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0	0		
Uncovered Parking Total	0	0	0	0	0	0	0	0	20	20	0	0	0	0	16	16	0	16		
Yard Storage (2040 program total)																				
SF (Excludes Gross Factor)	0	0	0	0	0	0	8400	8400	182570	186042	0	0	0	0	960	960	0	0		
Yard Storage Total	0	0	0	0	0	0	8400	8400	182570	186042	0	0	0	0	960	960	0	0		
Employee & Visitor Parking (2040 program total)																				
Medium (10x20)	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	13		
Employee Parking Total	7	7	11	11	17	17	63	63	60	60	14	14	10	10	15	15	0	13		
Admin + Ops (2040 program total)																				
SF (Includes Gross Factor) - Program	1893						20220					18914			2925		0			
SF (Includes Gross Factor) - Provided	2371						20418					18545			3023		0			
Admin Ops Difference	478						198					-369			98		0			
Maintenance & Shops (2040 program total)																				
SF (Includes Gross Factor) - Program	0						9265					48660			50904		0			
SF (Includes Gross Factor) - Provided	0						10935					51404			54046		0			
Maintenance & Shops Difference	0						1670					2744			3142		0			
Potential Second Floor																				
SF (Includes Gross Factor) - Program	0														0		0			
SF (Includes Gross Factor) - Provided	0														0		0			
Potential Second Floor Difference	0						0					0			0		0			



SCALE 1" = 50' - 0'



22 FEBRUARY 2020