



Maine Medical Center
MaineHealth

Institutional Development Plan





Institutional Development Plan

FINAL / October 9, 2017

Submitted to Portland City Council for Review

This document is valid until superseded by an approved update.

About This Plan

DATE: October 9, 2017

STATUS: Final / Submitted to Portland City Council for Review

Maine Medical Center (MMC) applied in January, 2017 for a zoning amendment to create an **MMC Institutional Overlay Zone (IOZ)** to allow MMC to modernize and expand their Bramhall St campus. The IOZ ordinance that provides the framework for this zoning was enacted by the City of Portland Code of Ordinances effective May 31, 2017.

The IOZ requires eligible institutions to submit an **Institutional Development Plan (IDP)**, a stand-alone document that describes the institution's tentative plans for the future, in addition to a **Regulatory Framework**, a land use code component that establishes the parameters to allow each institution to grow as envisioned in the IDP. The IDP and Regulatory Framework are institution-specific supplements to the more general provisions provided in the IOZ ordinance, and designed to provide a full list of variances from underlying zoning that are adopted by the Portland City Council.

Since January, MMC has met weekly with members of the neighborhood associations and City staff from Planning and other departments, to develop its IDP. This IDP was approved and the accompanying Regulatory Framework was recommended for approval to the City Council by the City of Portland Planning Board on September 26, 2017.

Once approved by the City Council, the MMC Regulatory Framework will establish the boundary for the MMC IOZ and provide zoning requirements that govern MMC's long-term development within the IOZ. Individual projects proposed by MMC in the IOZ in the future for such properties will be reviewed for zoning compliance with the MMC Regulatory Framework and any underlying zoning requirements that are not superseded by the IOZ.

This document was prepared for MMC by Perkins+Will with input from MMC, VHB, Gorrill Palmer, Sebago Technics, Colliers, Turner, and HeliExperts International. MMC would like to thank its neighbors in the Western Promenade, St John Valley, Parkside, West End, and Libbytown and the City of Portland for their contributions to the IDP process.

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INTRODUCTION

Maine Medical Center has been a member of the Portland community, a Portland landmark and a destination for excellent health care since it was built as Maine General Hospital in 1874. The campus has grown in size and complexity within its footprint to meet growing demand and changes in healthcare technology and care delivery.



ABOUT MAINE MEDICAL CENTER

Maine Medical Center (MMC) is a complete health care resource for the people of greater Portland, the entire state of Maine, and northern New England.

MMC is the state's largest medical center, licensed for 637 beds and employing more than 6,000 people. MMC's unique role as both a community hospital and a tertiary referral center requires an unparalleled depth and breadth of services, including the state's only medical school, through a partnership with Tufts University School of Medicine, and a world-class biomedical research center, the Maine Medical Center Research Institute.

The MMC care model includes the state's largest multispecialty medical group, Maine Medical Partners. Maine Medical Partners provides a wide range of primary, specialty, and subspecialty care delivered through a network of more than 40 locations throughout Maine.

Maine Medical Center is named one of "America's Best Hospitals" by US News & World Report. MMC's Trauma Center is the busiest in Maine, providing the most advanced tertiary care in the state.

MISSION, VISION AND VALUES

Maine Medical Center is dedicated to maintaining and improving the health of the communities it serves by:

- Caring for its community
- Educating tomorrow's caregivers
- Researching new ways to provide care

It proudly carries its unique responsibility as Maine's leader in patient care, education and research. MMC is dedicated to the traditions and ideals of not-for-profit healthcare. It provides care to all who seek it.

MMC's efforts to execute its Mission are aimed at achieving a simple, yet powerful Vision: "Working together so (Maine's) communities are the healthiest in America."

MMC is guided by a set of Values, helping to meet and exceed the expectations of those it is privileged to serve. MMC's Values:

- Patient-Centered
- Integrity
- Ownership
- Excellence
- Respect
- Innovation

PROGRAMS AND SERVICES

MMC provides a scope and depth of specialty and subspecialty inpatient and surgical care that is unparalleled in Maine.

MMC is the only Level I American College of Surgeons (ACS) trauma center in Maine and has the only Level III Neonatal Intensive Care Unit (NICU) and the only kidney transplant program in the state. MMC is an American Nurses Credentialing Center (ANCC) Magnet Hospital and has received numerous awards including: Best Regional Hospitals (2016-2017) from US News and World Report, Gold Seal of Approval and Top Performer in Key Quality Measures from the Joint Commission.

MMC is also the leading provider of tertiary services in the State of Maine. Tertiary services are defined as a set of Medicare severity diagnosis-related groups (MS-DRGs) that are rare and complex, require collaboration across treatment modalities, complex treatment decisions dependent upon unique diagnostic tests, regionalized care, and associated with complex co-morbidities and complications.

MMC's clinical services are organized into six service lines listed in **Table 1.1** at right. More information is available on the MMC website at <http://www.mmc.org/care-and-services>

Table 1.1 List of MMC Service Lines

ADULT MEDICINE

MMC's Adult Medicine Service Line extends across the continuum of care, spanning from primary care, to emergency and critical care, medical services for hospitalized adults, subacute rehabilitation and long-term care. It includes a wide array of specialty programs and services including Digestive Health, Endocrinology, Geriatrics, Infectious Disease, Nephrology, and Palliative Care. This service line also includes the procedural areas of Endoscopy and Transplantation.

CARDIOVASCULAR

MMC's Cardiovascular Service Line addresses the treatment needs of patients with cardiovascular diseases such as coronary artery disease, valvular heart disease, congestive heart failure, arrhythmias, congenital heart disease, and peripheral vascular disease.

ONCOLOGY

MMC's Oncology Service Line provides health services to patients diagnosed with cancer such as medical oncology, radiation oncology, gynecological oncology, and surgical oncology.

SURGICAL

MMC's Surgical Service Line addresses specific health problems requiring surgical intervention including cancer, cardiovascular disease, eye diseases and injuries, gastric and intestinal diseases and injury, gynecological diseases and injury, joint and bone diseases and injury, neurological and spinal diseases and injury, bariatric, trauma, and genito-urologic diseases and injury.

NEUROSCIENCES

MMC's Neurosciences Service Line addresses the treatment needs of patients with neurological diseases such as stroke, epilepsy, neuro-oncology, multiple sclerosis, neuroendovascular diseases, Parkinson's disease, Alzheimer's disease and dementia, neuromuscular diseases, peripheral nerve and muscle conditions, and spine disorders as well as an array of neurodiagnostic services including electroencephalography (EEG) and sleep lab.

WOMEN'S AND CHILDREN'S

MMC's Women's and Children's Service Line addresses the health problems and needs of women and of children under 18 years of age with such clinical services as child birth and pediatric subspecialties including, neonatology, pediatric medicine, oncology, cystic fibrosis, gastroenterology and nutrition, cardiology and cardiac surgery, nephrology, neurology, pulmonology, ophthalmology, orthopedics, and urology.

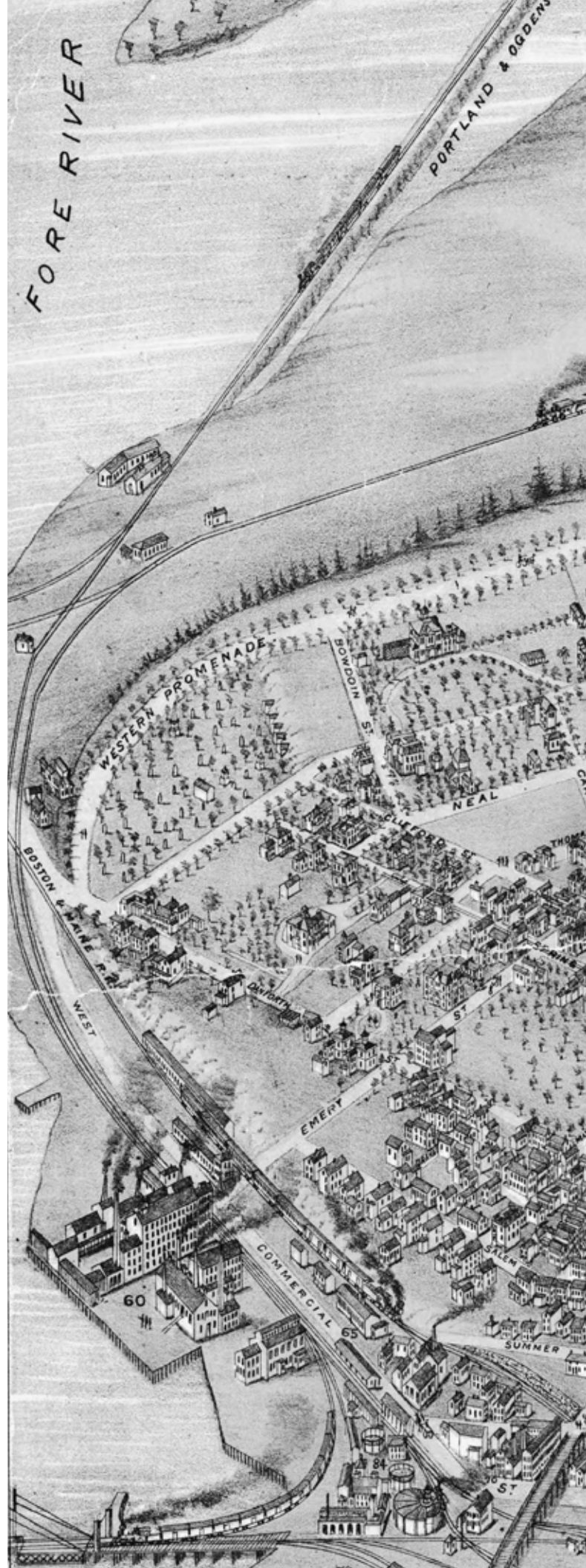
HISTORY

MMC opened its doors in 1874 as Maine General Hospital on Bramhall Hill, at the northern end of the tree-lined Western Promenade and adjacent to the Bramhall Reservoir.

The campus, designed by architect Francis Fassett, included four pavilions around a central administration building. The east pavilion and two outbuildings were erected first, providing patients with sweeping views of Casco Bay and the Fore River. The hospital was designated as the training facility for the Portland School for Medical Instruction and the Medical School of Maine at Bowdoin College, and had its own School of Nursing. Built of red-brick in Italian Gothic style, Maine General soon became a local landmark and a destination for the most up-to-date medical care in the state.

The opening of Union Station (1888) down the hill at Congress and St John Sts brought commercial uses to the area and improved access to the hospital. The hospital also catalyzed development of the area with medical uses such as the 1891 Maine Eye and Ear Infirmary as well as residential uses. The Western Promenade neighborhood gained prominence at the turn of the century as high-end homes and apartment buildings were built near the hospital and improvements were made to the

Fig.1.1 1876 Bird's eye view of Portland.





Western Promenade parklands. Maine General Hospital modernized its facilities through the 1920s and added a third pavilion in 1929.

In 1951, Maine General Hospital, the Maine Eye and Ear Infirmary, and Children’s Hospital merged to become MMC. Two new pavilions were added in 1956 to provide modern patient rooms. Suburban growth and the construction of interstate highways in the 1960s increased demand for parking at the Medical Center, which was met by converting the Bramhall Reservoir into a surface parking lot (current South Lot).

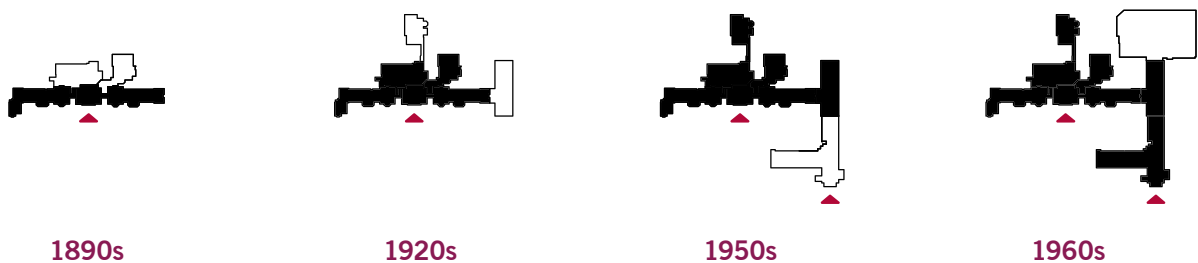
In 1968, MMC doubled the size of its facilities with the addition of the eleven-story Richards Wing. The campus expanded its footprint down towards Congress St with the addition of its first parking garage (now known as Employee Garage) in the 1970s. In the late 1970s, MMC became a teaching

hospital for the University of Vermont College of Medicine.

In 1985, MMC opened the six-story LL Bean Building, another major addition to the campus. The Bean Building housed the new Neonatal Intensive Care Unit (NICU), operating suites, and specialty departments; it also now houses the Barbara Bush Children's Hospital (BBCH). The Dana Building was built in 1987, adding much-needed classroom and conference space to the campus.

Through the 2000s, MMC has renovated and expanded its facilities to meet its role requirements as the highest acuity provider of healthcare in the state. In 2008, MMC opened the 190,000 SF East Tower including new units for prenatal care, labor, delivery and recovery, neonatal intensive care, and mother-baby units. The Emergency Department expanded into the basement of the East Tower the

Fig.1.2 Historical evolution of MMC



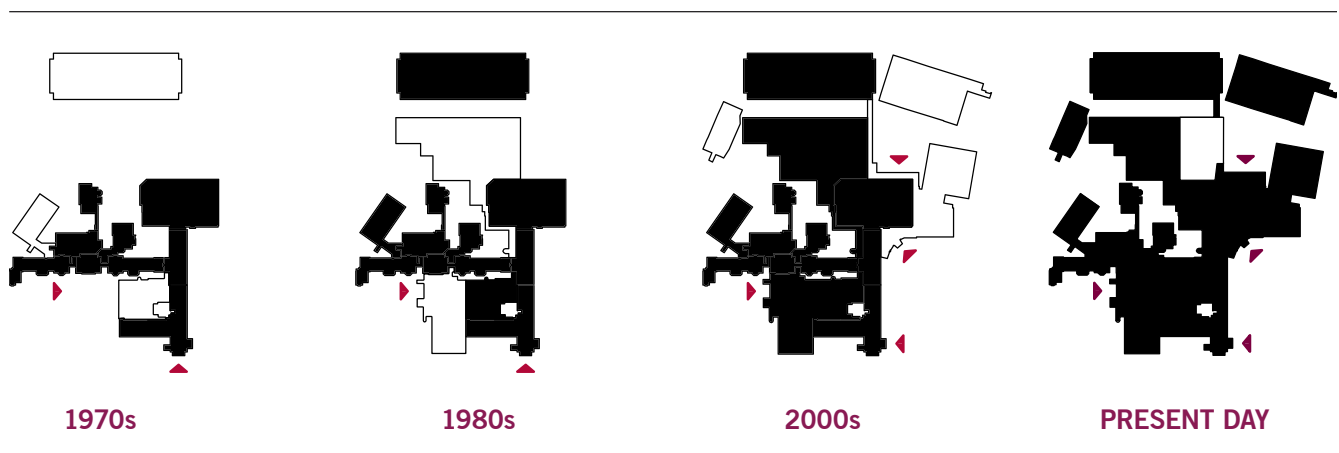
following year. The campus transformation project also included a new central utility plant and the 512-car Patient and Visitor Garage.

As its partnership with the University of Vermont came to a close, MMC initiated a new training program for medical students at the Tufts University School of Medicine in 2011. Today, MMC also hosts students from the Geisel School of Medicine at Dartmouth and University of New England College of Osteopathic Medicine.

In 2015, MMC completed construction on a portion of the LL Bean building roof to add new operating rooms and perioperative care beds.

Today, MMC is undertaking a new planning effort driven by the need to replace semi-private patient rooms with private rooms and to provide additional surgical capacity. The plan also provides an opportunity to address infrastructure

needs, parking, wayfinding, and overall building organization to improve the delivery of care (see **Chapter 2** for details).



CAMPUS CONTEXT

MMC Bramhall campus is located at a high point in the west end of the Portland peninsula that is renowned for the Western Promenade—an 18-acre park and national historic landmark designed by the Olmsted Brothers, among others. The campus abuts the Western Promenade in a dense urban setting that serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics.

The campus, which serves the entire state of Maine as well as eastern New Hampshire, is located within less than a mile's distance of I-295, which links Portland to destinations across New England. To the north, the campus fronts on Congress St—Portland's main street that extends along the spine of the peninsula to Portland's downtown and beyond. The MMC campus is located at the western gateway into the City.

Fig.1.3 Bird's eye view of the campus in its urban context







Fig.1.4 Bird's Eye View of the Campus in Context, Looking North



ADJOINING NEIGHBORHOODS

The 21.8-acre MMC Bramhall campus abuts four distinct neighborhoods. To the west and north is the St John Valley Neighborhood, a diverse area featuring a wide mix of uses including industrial warehouses, a large food processing plant, bus garages and facilities, single-family residential, local and chain restaurants, multi-family rentals, and alternative grocery stores. St John Valley, and the largely residential Parkside neighborhood to its east, are among the most ethnically and racially diverse in Portland. (City of Portland GIS Maps, 2010 Diversity Index). The two neighborhoods share easy access to Hadlock Field, Fitzpatrick Stadium, and Deering Oaks Park north of Park Avenue.

The Western Promenade neighborhood is located to the south of the medical campus. The focal point and namesake of the neighborhood is the 18-acre linear park that wraps the 120-foot tall escarpment, providing sweeping views of the Fore River. Designated as a park as early as 1836, and designed in 1905 by the Olmsted Brothers. The Western Promenade neighborhood and large sections of the adjoining West End neighborhood are included in the West End local historic district in recognition of their cohesive residential character featuring major architectural styles from 1850 to the 1920's (see Historic Resources at right).

ZONING CONTEXT

Development on the MMC campus has been historically governed by Contract Zone agreements C41 (main campus) and C18 (Congress St Medical Building).

At the request of the City, and with input from its neighbors, MMC has developed an Institutional Development Plan (IDP) in the new Institutional Overlay Zone (IOZ). See **Fig.1.5 on page 19** for a map of MMC's IOZ in its zoning context.

HISTORIC RESOURCES















The MMC Bramhall campus abuts the West End Historic District, one of the eleven locally-designated historic districts in the City of Portland (see **Fig.1.5 on page 19** for district boundary). The locally-designed West End Historic District includes the Western Promenade, an 18-acre public park that dates back to the 1830s.

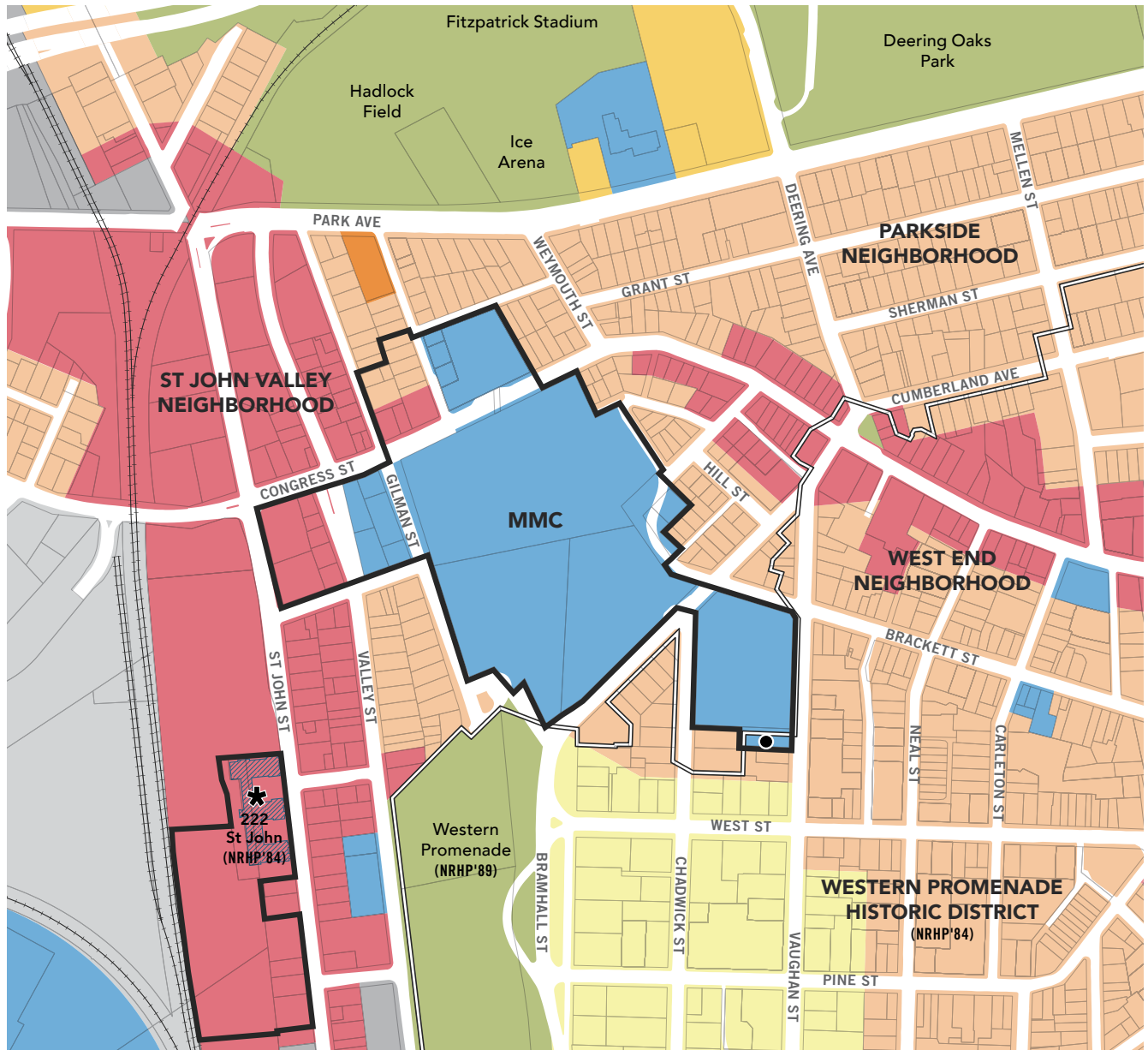
The West End Historic District was added to the National Registry of Historic Places (NRHP) under the name "Western Promenade Historic District" in 1984. The Western Promenade was also added to the NRHP database as a Historic Landscape in 1989.

MMC's IOZ boundary includes the Maine Central Railroad General Office Building located at 222 St John St, which was added to the NRHP in 1988. The IOZ boundary also includes McGeachey Hall at 216 Vaughan St, which is listed as a contributing structure to the Western Promenade Historic District (see **Fig.1.5 on page 19** for locations).

Any development within the IOZ boundary that is adjacent to or within 100 feet of any designated landmark, historic district, or historic landscape district will be subject to applicable requirements listed in Article 5 (Site Plan) of the City of Portland Land Use Ordinance.

Fig.1.5 MMC Campus: Neighborhood and Zoning Context (Data Source: City of Portland GIS)

- | | | |
|--|---|--|
|  MMC Institutional Overlay Zoning (IOZ) District Boundary | CITY OF PORTLAND EXISTING ZONING DISTRICTS | |
|  West End Local Historic District Boundary |  R4 Residential |  IL Industrial - Low Impact |
|  NRHP-Listed Structure within IOZ Boundary |  R5 Residential |  IM or IMb Industrial - Moderate Impact |
|  Contributing Structure to National Historic District within IOZ Boundary |  R6 Residential |  ROS Recreation Open Space |
|  Parcel Boundaries |  RP Residential Professional Community |  Contract Zones (including existing MMC Contract Zones 18 and 41) |
| |  B2 or B2b Business | |



PROPERTY OWNERSHIP

MMC owns and leases a number of properties across the City of Portland. These properties are listed and identified on a map on the following pages (see **Fig.1.7** and **Tables 1.2** and **1.3** on the following pages).



Properties that have a functional relationship to the MMC Bramhall campus, which is the subject of this IDP are highlighted with an **★** on **Tables 1.2** and **1.3**. Per the requirements of the IOZ, a functional relationship is defined as uses or activities that are integrally linked to the day-to-day operations of the MMC Bramhall Campus, without which activity at MMC would be severely limited in one or more services.

Fig.1.6 Bird's Eye View of the Campus in Context, Looking South





Fig.1.7 Map of MMC-Owned Parcels and Leased Properties

 All Parcels within the City of Portland owned  Locations where MMC leases space (map extent only)

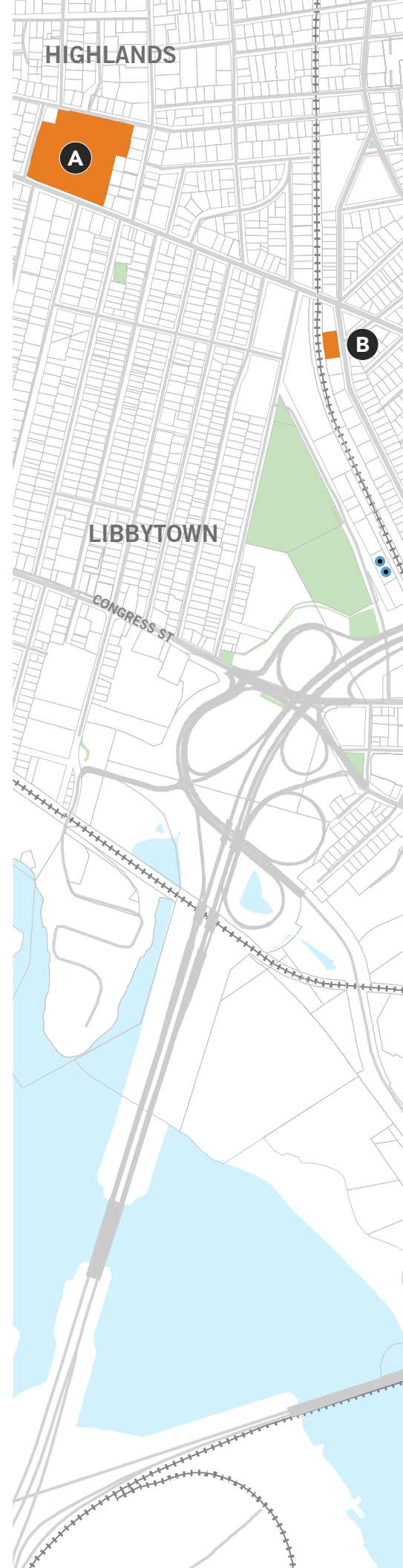
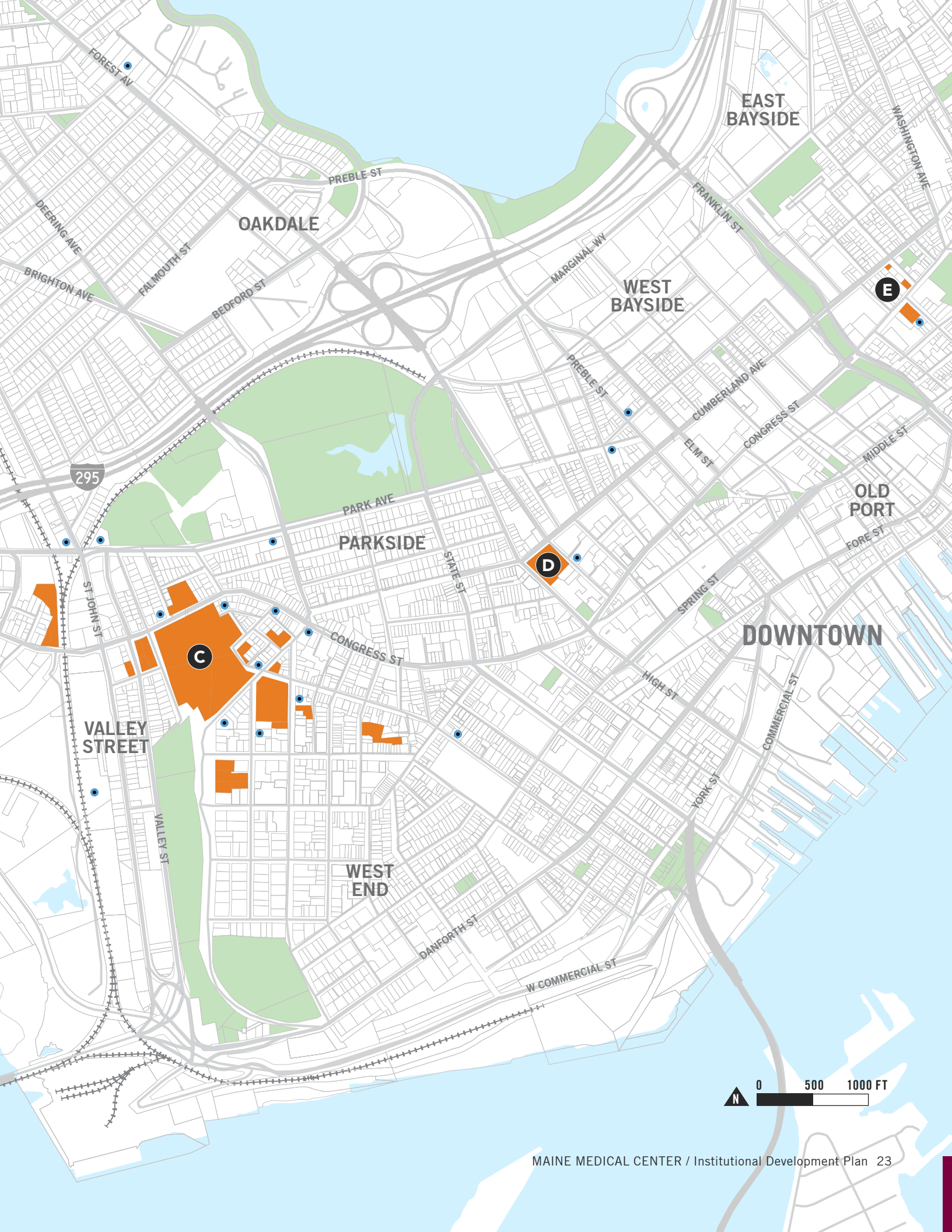


Table 1.2 List of Properties Owned by MMC within the City of Portland

Parcel Address	Current Use	Parcel Address	Current Use
A MMC BRIGHTON CAMPUS			
335 Brighton Ave	MMC Brighton	22 Bramhall St	MMC Bramhall
367 Brighton Ave	Residential	930 Congress St	Medical Office
27 Hollis Rd	Residential	932 Congress St	Business Office
136 Prospect St	Residential	887 Congress St	Medical Off. / Pkng
142 Prospect St	Residential	308 Brackett St	Parking (South Lot)
170 Prospect St	Residential	993 Congress St	Parking
B MMC BEHAVIORAL HEALTHCARE			
556 St John St	Medical Office	995 Congress St	Business Office
D GATEWAY GARAGE BUILDING			
177 High St	Business Office	98 Chadwick St	Maint. Garage
429 Cumberland Ave	Business Office	94 Chadwick St	Parking / Storage
Note: MMC does <u>not</u> own but leases parking spaces in the Gateway Garage.			
E PORTLAND FAMILY MEDICINE			
272 Congress St	Medical Office	47 Bramhall St	Business Office
263 Congress St	Parking Lot	229 Vaughan St	Business Office
148 Cumberland Ave	Parking Lot	216 Vaughan St	Medical Office
C MMC BRAMHALL CAMPUS AREA			
		66 Bramhall St	Medical Office
		19 West St	Medical Office
		120 West St	Residential
		34 Ellsworth St	Vacant Land
		40 Ellsworth St	Vacant Land
		231 Western Prom	Residential
		227 Western Prom	Vacant Land
		44 Gilman St	Parking
		52 Gilman St	Medical Office
		261 Valley St	Parking
		262 Valley St	Parking
		264 Valley St	Vacant Land

Table 1.3 List of Properties Leased by MMC in the City of Portland

Parcel Address	Current Use	Parcel Address	Current Use
131 Chadwick St	Business Office	905 Congress St	Parking
180 Park Ave	Business Office	98-100 India St	Parking
233 Vaughan St	Business Office	183 Brackett St	Residential
241 Oxford St	Business Office	25-29 Crescent St	Residential
315 Park Ave	Business Office	321-325 Brackett St	Res. / Pkng
39 Forest Ave	Business Office	75 St. James St	Storage
509 Forest Ave	Business Office	85 St. James St	Storage
7 Bramhall St	Bus. Off. / Pkng	<i>Located off the map extent:</i>	
794 Congress St	Business Office	12 Andover Road	Medical Office
295 Park Ave	Medical Office	1250 Forest Ave	Medical Office
20 Portland St	Medical Office	1577 Congress St	Medical Office
818 Congress St	Medical Office	901 Washington Ave	Business Office
181 High St	Parking	190 Riverside St	Business Office
222 St John St	Parking	87 Central Ave	Medical Office



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COMPLIANCE WITH THE COMPREHENSIVE PLAN

MMC, being a long term member of the Portland community, recognizes the Comprehensive Plan contains the City's overall goals for growth and change through the articulation of a variety of policy directives and goals for the development. Among other things, the Plan addresses the City's infrastructure, commercial/business development, transportation resources, industry, and commerce and residential housing plans.

The MMC IDP and Regulatory Framework are in basic harmony with the City's overarching goals and policies. With its IDP and Regulatory Framework, MMC has balanced and accommodated the many City goals and policies in a way that advances the City's overall best interests while at the same time addresses the high priority healthcare needs of Portland's residents and the people of the State of Maine. This balancing is exactly the type of flexibility that the City's recently drafted IOZ ordinance is meant to facilitate.

The Comprehensive Plan challenges the City to "support the vision of large, transformative projects [such as the MMC modernization project] through strategic, cost effective, and incremental actions" (*Comprehensive Plan*, p.74).

MMC IDP: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In this IDP, MMC conveys the need to modernize its facility in order to meet the healthcare needs of the people of northern New England. This includes not only upgrading clinical space and providing for the needs of patients and families, but also continuing its investment in its personnel and their ability to travel to and from the workplace and secure needed parking. The adopted 2035 Comprehensive Plan "promotes the orderly expansion of institutional uses, such as educational and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies" (*Comprehensive Plan*, p.45).

Economic Growth

Employee engagement indicators reveal that one of the issues of greatest importance to current and future employees, in addition to compensation, is parking availability. In order to attract a high quality, highly educated workforce, MMC factors into its operations these two important considerations. Following the completion of its short-term modernization project, MMC projects a growth in its employment base into the future in part because of its status as an excellent academic medical center. Portland's Comprehensive Plan promotes the growth in employment base and supports sustainable growth in education and medical institutions (*Comprehensive Plan*, pp. 44 and 88)

Transportation

MMC has considered its transportation needs holistically, factoring into its future development alternative means of transportation. Since 2009, MMC has implemented a Transportation Demand Management (TDM) plan called "Get on Board!". MMC is updating that plan and considering enhancements to encourage more walking, cycling, and public transportation by its employees.

MMC's ability to promote alternative modes of transportation and success in TDM relies on the availability of a regional system of safe and reliable alternative modes of transportation. Therefore, MMC supports the City's effort to 'explore the technical and financial feasibility of a Transportation Management Association (TMA) as a means of improving access to, and mobility around, downtown, and the waterfront.' (Comprehensive plan, p.76)".

MMC has been, and continues to be, committed to the process and has often been cited by the City of Portland Planning Department as a TDM role model in the City.

Environment

A clean environment is important for healing and health. MMC is environmentally conscious and engages in recycling to minimize the generation and environmental impacts of solid waste. The Hospital conserves water when possible, and has switched away from pesticides to more organic landscape solutions reflecting Portland's goal of "model[ing] environmentally sound landscape management practices, such as planting native species, and limiting the use of pesticides and fertilizers" (*Comprehensive Plan*, p. 20). Buildings are built with energy efficiency standards in mind. Local farmers visit the campus weekly during harvest months and employees are encouraged to support the local food movement. The Comprehensive Plan also notes the need to "support a healthy, resilient, and sustainable food system by collaborating with local and regional stakeholders" (*Comprehensive Plan*, p.20).

MMC REGULATORY FRAMEWORK: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In keeping with the goals of the Comprehensive Plan, MMC has projected its future expansion needs, taking into account the neighborhood context in which it is situated. MMC has minimized future expansion into residential areas adjacent to its campus, thereby preserving housing stock in the City (*Comprehensive Plan*, pp. 48-50). It has appreciated the neighborhood involvement in

its zoning process and has been responsive to the concerns raised.

MMC is taking the bold step of reorienting its front entrance to Congress St, which serves as a gateway corridor to the City of Portland. The area presently is commercial in nature and in need of investment and activation as is recognized by the City's *Comprehensive Plan* (pp. 84, 86). Welcoming the public at the new entrance accomplishes a number of land use goals: it adds tremendous activity to the streetscape, with people coming and going. It also eliminates traffic in the residential neighborhoods of the West End and Western Promenade by providing clear wayfinding directly off of Interstate 295 and the major arterials entering the City. Further, investment in this area will transform the area with the expectation that other properties in the vicinity will likewise invest. In fact, the owners of Union Plaza, located at the junction of Congress St and St John St, testified before the Portland Planning Board that they have been waiting for such investment before they took the step of redesigning and investing further in that property. MMC expects, and is excited about, a transformation of the area into a more vibrant, active and clean area, good for local merchants, hospitality businesses, restaurants and residents.

The *Comprehensive Plan* identifies the St John St / Congress St area as a "priority node, an area that has seen disinvestment, grown in sprawling

patterns, simply have the potential to serve as focal points for change in the forms of increased density or, height, streetscape improvements, or diversification of uses to better serve neighborhood needs" (*Comprehensive Plan* p. 84, see **Fig.1.8 on page 27**). MMC's IDP will serve as the catalyst to stimulate new development, investment and reinvestment in this area of the City.

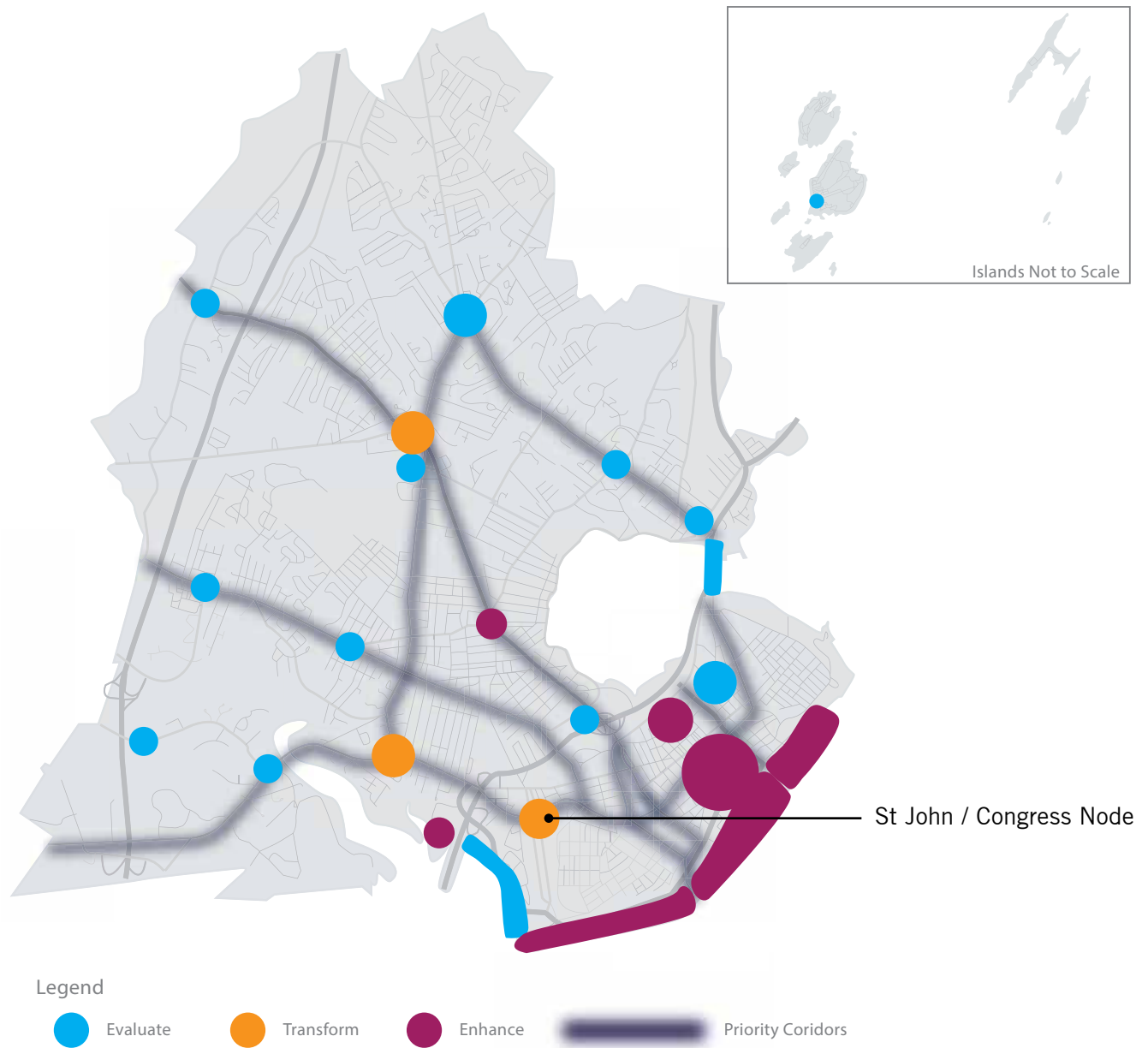
MMC's IOZ Regulatory Framework provides the mechanism for thoughtful, future development to transform the priority corridor identified by the City into an area of "additional mixed uses, higher density growth to take advantage of the transit benefits and services that well-designed, diverse corridors can offer" (*Comprehensive Plan*, p.84).

CONCLUSION

From an analysis of MMC's IDP, it becomes clear that the IDP is consistent with the City's *Comprehensive Plan* and the purposes contained within the City's IOZ ordinance.

From an analysis of the Regulatory Framework that accompanies MMC's IDP, it becomes clear that the Regulatory Framework is consistent with the City's *Comprehensive Plan* and with MMC's IDP.

Fig.1.8 Diagram Showing Priority Nodes and Corridors, City of Portland Comprehensive Plan (2017)



PUBLIC INPUT ON IDP

MMC appreciates the importance of maintaining an open dialogue with its neighbors and keeping its neighbors up to date on its evolving plans for replacement and modernization at its Bramhall Campus. In August 2016, MMC leadership met with the neighborhood representatives of its four adjacent neighborhood groups: St John Valley, West End, Western Promenade, and Parkside to explain its need to modernize its campus. Shortly thereafter the Libbytown Neighborhood Association was added to the group.

Since November 2016, MMC has met on a monthly basis with two representatives of each neighborhood ("Expansion Group") to engage in a productive dialogue regarding the City's new IOZ process

and MMC's IDP. The City's Planning Director and the City's District 2 Councilor has been invited to each of these monthly meetings. The minutes of the monthly meetings are distributed to the Group members who are asked to disseminate them to respective neighborhood constituents.

MMC also has created a website (<http://www.mmc.org/modernization>) to ensure open communication with the community at large and specifically its adjacent neighbors. The minutes of each Expansion Group meeting are posted on the website, as are any updates or current events occurring which involve MMC's plan. These include dates for the Planning Board workshops and hearings and a link to the City's Planning website. A designated contact

Fig.1.9 Public Meeting #1 (January 12, 2017): Open House Portion for Collecting Public Comments



email has been established where residents can ask questions, provide suggestions, etc., and a text about sign-up is provided for those who want to receive them.

Finally, to date, MMC has held two larger neighborhood meetings where information has been shared about MMC's needs and its plans to address its issues of bed capacity, operating needs and transportation and parking. These meetings have been well attended and have allowed time for participants to ask questions, voice opinions and to get answers. The minutes of these meetings are posted on the MMC website as well as submitted to the City of Portland.

MAJOR AREAS OF PUBLIC CONCERN

At the initiation of MMC's Master Facility Planning engagement with its neighbors, it was recognized there would be concerns identified by neighborhood residents that would require ongoing dialogue and an openness to new ideas or suggestions. It was understood that there may be many areas where consensus of approach will be reached, and other areas where reasonable minds could differ. MMC and the participants in this process have identified the following "areas of major public concern":

- By far the biggest concern with the MMC proposed IDP revolves around transportation and parking, and specifically with the location of future parking structures;
- The extent of IOZ boundaries and a fear of property acquisition by MMC in residential zones;
- Fear of loss of local amenities, and the desire for mixed-use development that includes street-level retail and restaurants;
- Patients, visitors, or employees smoking in the neighborhood; and,
- Hope for continued public engagement between MMC and its neighbors.

MMC's IDP has addressed each of these concerns in the following chapters. In addition, the public indicated concern with the height of the proposed Gilman St parking structure as well as the need for a well-thought-out Construction Management Plan to apply during the course of construction. MMC has listened to each of these concerns and has addressed them as follows:

- MMC has relocated the parking structure from Gilman St to a nearby location that is tucked behind existing buildings on St John St. By doing so it was able to lower the height of the structure while also removing it from the priority node designated by the City for gateway treatment.
- MMC has hired Turner Construction Company to manage the daily operations of construction. Turner is well-versed in managing construction projects adjacent to residential uses and has agreed to comply with all requirements of the City Construction Management Template, which is attached as an appendix to this IDP.

MASTER FACILITY PLAN

As it nears its 150th anniversary, Maine Medical Center continues to improve its facilities and services to fill its role as Maine's leader in patient care, education, and research. MMC is engaged in master facility planning to address clinical, building, and parking needs.



MASTER FACILITY PLANNING PROCESS

The goal of any healthcare facility planning process is to evaluate the suitability of the campus or facility to meet anticipated needs for the delivery of healthcare with enough flexibility to allow for adjustments within an ever-changing healthcare market. Future development opportunities are identified in this process.

Maine Medical Center's campus has grown in size and complexity throughout the years. This growth brought changes in programmatic and infrastructure needs and to allow it to serve patients in the State.

PLANNING FACTORS SPECIFIC TO HEALTHCARE

There are a multitude of factors to consider in healthcare planning that are unique to the industry and some that limit the ability to plan too far into the future. Due to the unpredictability of many of these factors, healthcare planning beyond three years with relative accuracy is challenging. Therefore, healthcare planning is typically completed in three-year increments. For example, the rate of change in healthcare payment and policy often follows federal and state election cycles but can change as often as annually. A summary of factors that affect healthcare planning is included in the **Table 2.1** at right.

MMC'S MASTER FACILITY PLAN: PROCESS

Each of the following are aspects of a master facility plan and have been evaluated to determine the needs and projected growth for MMC.

Facility Assessment

The baseline for any master plan is to evaluate the current state of the campus including age of buildings, capacity of infrastructure, and appropriateness of building layout to accommodate the modern delivery of healthcare. This helps the organization identify areas which must be addressed by any future facility work.

Programmatic Requirements

Anticipating the healthcare needs of a community is challenging beyond a three-year period. Healthcare facilities are designed to last several years and attempt to anticipate change by allowing for flexibility and multi-use spaces. Best-practices and industry standards in healthcare delivery are used as benchmarks to anticipate programmatic needs.

Adjacencies

Maximizing key programmatic adjacencies is next in developing a functional master plan once a campus baseline and programmatic requirements are understood. Currently dispersed programs and long travel distances existing on the campus are to be evaluated and studied as an opportunity for improvement. Assessing the flow patterns and travel distances enables proper reorganization of program adjacencies for current and future design interventions.

Table 2.1 Planning Factors Specific to Healthcare

Factor	Definition
POPULATION	<p>Changes in utilization due to population growth:</p> <ul style="list-style-type: none"> — Population increase or decrease — Population aging — Population distribution — Consumer preference
EPIDEMIOLOGY	<p>The underlying causes of disease (divided into two categories):</p> <ul style="list-style-type: none"> — Disease-based: Estimates the incidence and prevalence that are impacted in the long-run by preventative measure (i.e. vaccinations effectiveness) — Behavioral-based: Changes in disease incidence and prevalence due to behavioral and sociocultural factors (i.e. obesity, smoking, diet)
ECONOMICS	<p>Macro-economic factors that affect healthcare utilization:</p> <ul style="list-style-type: none"> — Employment — Healthcare Consumer Price Index — Gross domestic product growth or decline — Employer-based coverage levels — Benefit level and out-of-pocket expense — Regional/Local healthcare environment
PAYMENT & POLICY	<p>Legislative and market-driven reform, including specific payment and policy innovations that will impact utilization:</p> <ul style="list-style-type: none"> — Health insurance coverage expansion — Bundled payment initiatives/pilots — Accountable Care Organizations (ACOs) — Publicly-funded prevention and wellness initiatives
INNOVATION & TECHNOLOGY	<p>Structural technology that shifts the site at which care is delivered or innovations that affect utilization across different care settings:</p> <ul style="list-style-type: none"> — Imaging and diagnostics — New therapeutics — Pharmaceutical advancements — Quality innovations
SYSTEMS OF CARE	<p>Increased efficiency resulting from better care coordination and serve integration across various care sites:</p> <ul style="list-style-type: none"> — Clinical Integration: Use of evidence-based practices and elimination of redundant care — Alignment: Coordination between providers, including inpatient and outpatient providers — Information Technology: Includes computerized physician order entry (CPOE) and e-care
WORKFORCE AVAILABILITY	<p>The healthcare workforce is highly specialized which requires years of training. The availability of qualified individuals can severely limit a healthcare organization’s ability to provide care.</p>

KEY INSTITUTIONAL NEEDS

MMC's facility needs are multi-factorial but can be summarized into four categories:

1. Clinical Need
2. Building Need
3. Campus Reorganization
4. Parking Need

1. CLINICAL NEED

Increasing Severity of Case Mix

MMC treats Maine's sickest patients and estimates that the average patient seeking care at MMC will continue to get sicker. MMC's case mix index (CMI) was 1.86 in fiscal year 2015 (October – September); the highest in the state of Maine. A hospital's case mix index is calculated by finding the average severity of diagnosis-related groups at that hospital. The average case mix index for a hospital in the United States is 1.31 (CMS.gov). MMC's CMI grew to over 2.00 in fiscal year 2016 and is expected to continue to increase in the future.

Bed Shortage

Over half of MMC's inpatient beds are located in semi-private rooms (see **Fig.2.2**). MMC closes an average of 60 inpatient beds in semi-private rooms every day to prevent infection due to disease-resistant organisms (DROs), or to address behavior related issues or other room sharing restrictions. This, along with construction closures for renovations and repairs, reduces MMC's licensed bed capacity of 637 beds to an effective bed capacity closer to 560 on an average day (see **Fig.2.3**).

On a routine day, MMC can expect approximately 100 admissions from Surgery and the Emergency Department and 35 to 50 transfer requests per day from other healthcare and provider organizations. When 500 patients are in the hospital and over 60 beds are closed, a limited number of inpatient beds are available for new patients. Inpatient beds are specialized for medical/surgical, intermediate care,

Fig.2.1 MMC's Case Mix Index: Historic Data and Projections

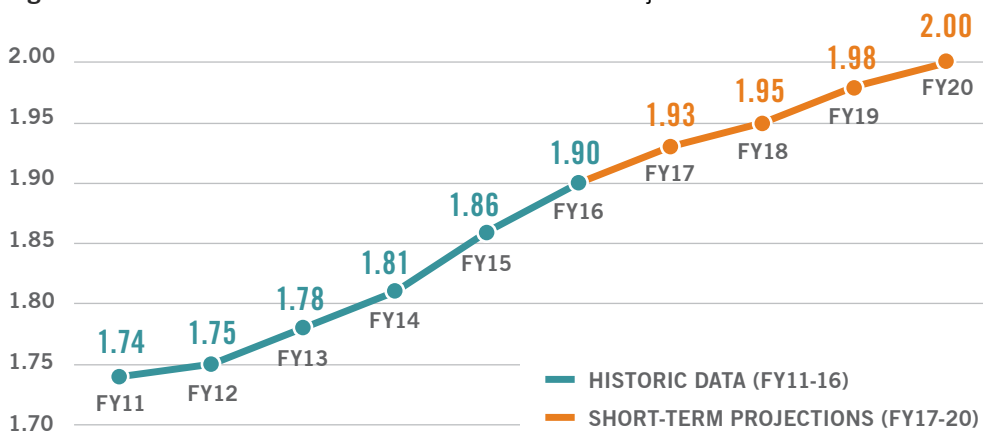


Fig.2.2 Existing Inventory of Private vs Semi-Private Beds

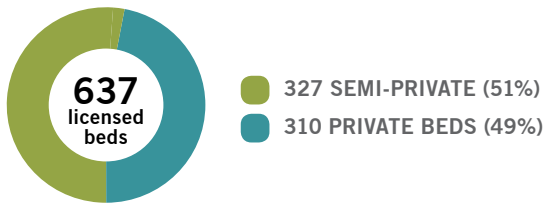
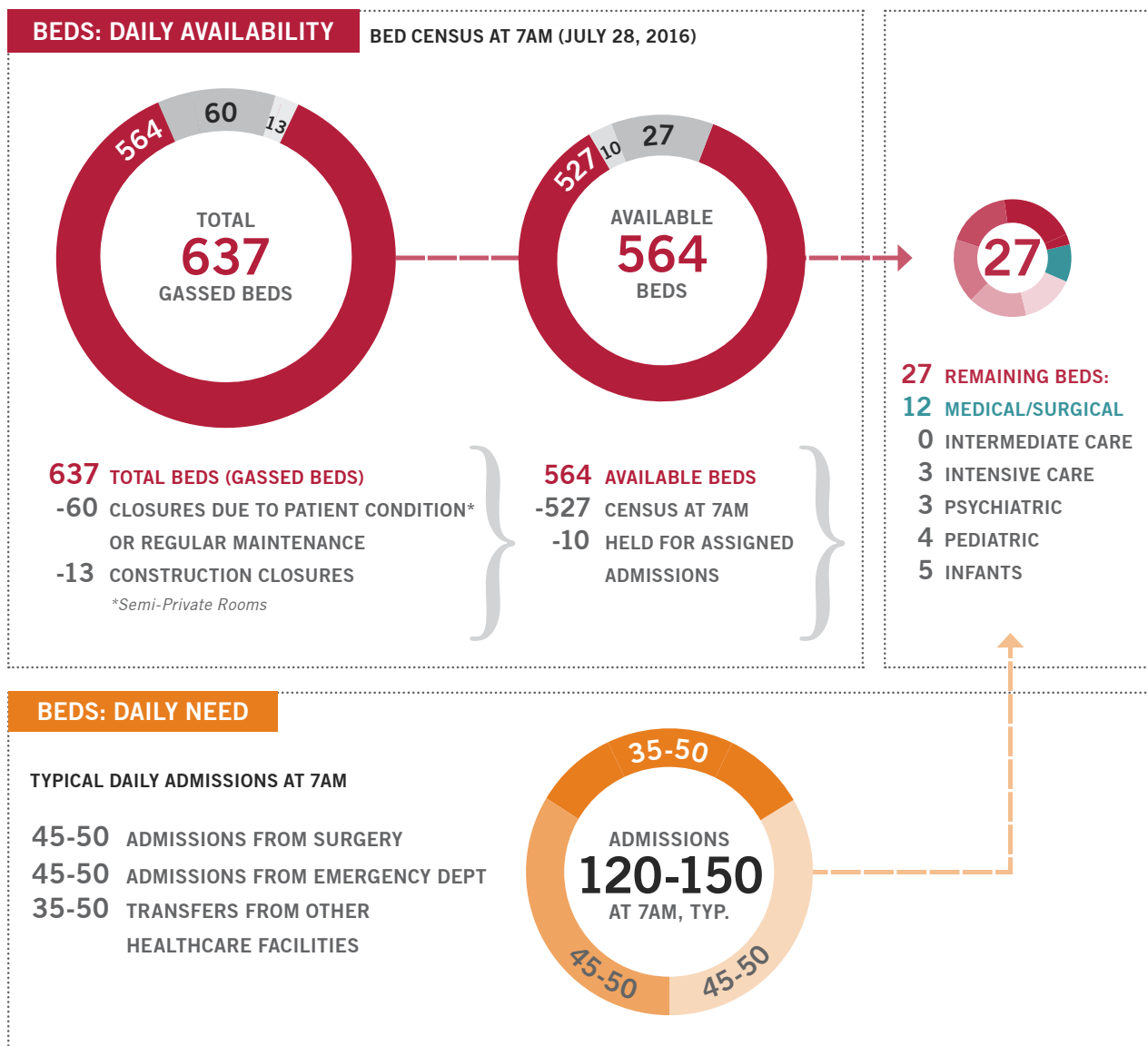


Fig.2.3 A Day in the Life of MMC: Bed Shortage



intensive care, psychiatric, pediatric, or infant care services. The actual number of beds available for specific populations of patients is much smaller. For example, if a patient needs a critical care bed but, the only beds that are available are general medical/surgical, then MMC struggles to meet that patient's needs.

Fig.2.3 demonstrates a snapshot of the challenge MMC is faced with daily to meet the needs of the community due to bed shortages. The challenge is expected to grow in complexity as patients get sicker and require highly specialized care. Many of the rooms are also too small and not flexible enough to meet the demands of the growing universality of medical equipment. The Master Facility Plan recommends adding private patient rooms and procedural capacity to meet current needs and to plan for the future. Adding new private rooms was also identified as a key strategy to decompress existing buildings, maximizing infrastructure capacity.

2. BUILDING NEED: AGING FACILITIES

The age of campus buildings is the first key element of assessing the overall suitability as structures for continued use in healthcare delivery. Facilities at MMC date back to the 1870's with the construction of the Maine General Building. Since the early 1900s, MMC has grown to meet the needs of patients. Close to 77% of MMC's clinical activities occur in buildings more than 30 years old.

MMC regularly conducts building assessments to inform future investment and development decisions on campus. The assessments evaluate the condition of building structure and systems, and compliance with current building codes and regulations including fire safety. The 2015 assessment illustrates the age and condition of the buildings on campus (see **Fig.2.4 and Fig.2.5**). Among those that are listed, continued investment is cautioned in the Pavilions, the Richards Building and the LL Bean Building, which together host a large percentage of the hospital's bed inventory. These include a large number of semi-private beds that must be replaced by beds in private rooms to conform to current patient care standards. The Employee Garage is identified for replacement in the short-term due to its structural challenges.

MMC's Care teams work collaboratively with MMC's Facilities and Engineering teams to ensure patients are cared for in the best possible environment. This requires continuous maintenance and improvements to the facilities. The remaining opportunities for

improvement and retrofits in the existing buildings are marginal. It is impossible to enlarge operating rooms or make semi-private rooms private without major disruptions to the delivery of patient care, reduction in capacity, major facility expansion, or some combination.

The proposed short-term projects (see page 40) will partially replace and modernize MMC's campus to meet anticipated future need. Proposed patient rooms will be private and adaptable to the level of care needed by patients. They will be "universal rooms" capable of being occupied by a wide spectrum of patient populations from intensive care to general medical or surgical care. Procedure rooms will be large enough to fit the equipment and technology needed for the complex procedures that patients increasingly require at MMC.

3. CAMPUS REORGANIZATION

Healthcare facility plans seek to optimize adjacencies between critical departments to reduce travel distances across campus for staff and patients.

Currently dispersed programs and long travel distances present an opportunity for future improvement on the MMC campus. The planning team assessed multiple flow patterns and travel distances to enable proper reorganization of program adjacencies to improve safety and efficiency of healthcare delivery, and ease of wayfinding for patients and families.

4. PARKING NEED

MMC hosts a wide variety of people on the Bramhall campus every day. Patients, families, staff, and students all require access to the facility. Patients and families from all over northern New England come to MMC for care. These people do not live close enough to take advantage of alternative methods of transportation like buses, cycling, or walking that are provided locally. Clinical and support staff require safe, reliable, and often emergent, access to the facility in order to provide services to patients. Providing parking is a priority at MMC, and a key driver of the Master Facility Plan (see **Chapter 3. Transportation Plan** for details).

Fig.2.4 Existing Facilities by Age

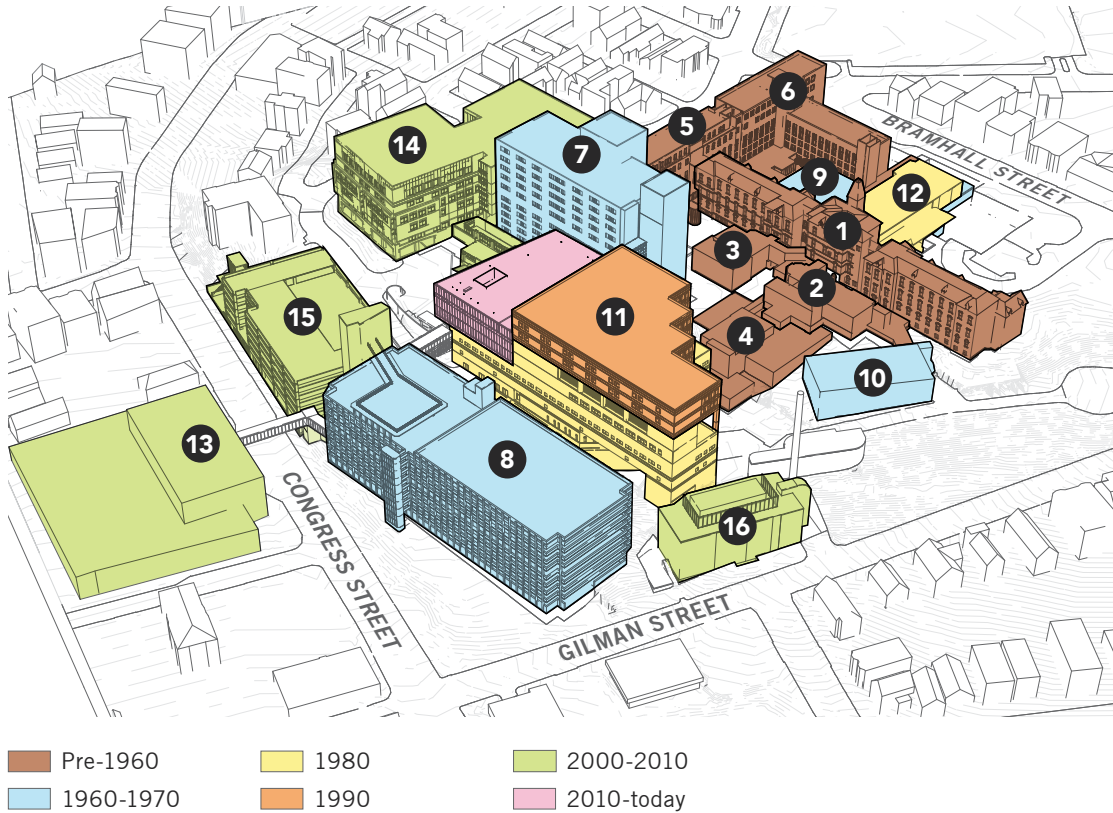


Table 2.2 Inventory of Existing Facilities

#	Building Name	Date	Gross SF	#	Building Name	Date	Gross SF
1	Maine General	1870s	72,920	10	Engineering Services Bldg	1978	23,840
2	Annex B	1870s	36,250	11	LL Bean Building	1985	231,830
3	Annex C	1870s	13,190	12	Dana Building	1987	19,310
4	Annex A	1929	10,110	13	Congress St Medical Office Building	1999	47,000
5	Pavilion A	1929	66,380	14	East Tower	2008	200,000
6	Pavilions C & D	1956	83,460	15	Patient and Visitor Garage	2008	--
7	Richards Building	1968	228,920	16	Central Utility Plant	2008	--
8	Employee Garage	1970s	--				
9	Diagnostics Building	1976	89,150				
				TOTAL 1,122,360 GSF			

Fig.2.5 2015 Facility Assessment Results



Continued investment in this building is:

■ Recommended ■ Cautioned ■ Not recommended for future use.

See Table 2.2 on opposite page for building numbers.

PROJECTED DAILY CENSUS

While the number of patients, visitors, and employees on MMC's Bramhall campus varies day-to-day, a daily census estimate can be produced for a typical week day using a variety of data sources, including the annual patient counts (see **Table 2.3 at right**). The estimated daily census of individuals on campus is included in **Table 2.4** and exceeds six-thousand individuals.

The anticipated change in campus users over time is summarized in **Table 2.4**. MMC developed this estimate considering the following summarized factors:

- MMC is Maine's largest medical center, the only American College of Surgeons Level 1 trauma center, only American Academy of Pediatricians Level III nurseries and the largest academic medical center, in partnership with Tufts University School of Medicine and is therefore best equipped to meet the rising patient need.
- The number of Maine residents seeking care outside of Maine has been decreasing over the past several years.
- MMC's share of inpatient discharges has increased over the past several years.
- MMC's Case Mix Index is increasing.
- Complex healthcare services are consolidating across the country.

MMC uses national healthcare consulting firm Sg2 and The Advisory Board to consider additional

factors impacting the evolving healthcare industry and local demand for services. Additional factors considered in the volume estimate include the following and those listed in **Table 2.1 on page 33**:

- Changes in healthcare utilization as a result of changes in the population within the hospital's service area;
- Changes in the underlying causes of disease (i.e. incidence and prevalence of disease and the impacts of a focus on prevention) and behavioral-based impacts to health (i.e. smoking and obesity);
- Macro-economic factors affecting healthcare utilization (i.e. employment, employer-based insurance coverage, health care consumer price index);
- Legislative and market-driven healthcare reform;
- Innovations in technologies and models of care;
- Improvements in the systems of care that improve coordination among providers; and,
- Continuous process improvements within care models that reduce potentially avoidable admissions and 30-day readmissions.

The Projected Daily Census is the basis of calculations for future campus transportation needs discussed in the following chapter.

Table 2.3 Historic Data: Annual Census of Patients on Bramhall Campus (FY 2013-2016)

	2013	2014	2015	2016
Inpatient Discharges	29,253	29,401	30,196	30,889
Outpatient Activity	138,626	132,257	140,862	154,434
Bramhall Outpatient Clinics	39,829	40,694	38,209	39,709
TOTAL	207,708	202,352	209,267	225,032

Table 2.4 Individuals on Campus on an Average Week Day: 2016 Estimates and 2026 Projection

	2016 (FYE Sept-Oct)	Forecast, 2026	Projected 10-Year Growth	CAGR (2016-2026)
Inpatient Discharges	100	110	7.84 %	0.76 %
Inpatient Visitors	250	270	7.84 %	0.76 %
Outpatient Activity	600	620	4.45 %	0.44 %
Outpatient Visitors	600	620	4.45 %	0.44 %
Bramhall Outpatient Clinics	150	150	-1.79 %	-0.18 %
Employees: Shift 1 (inc. volunteers)	3,640	3,900	6.96 %	0.67 %
Employees: Shift 2	210	220	6.96 %	0.67 %
Employees: Shift 3	520	550	6.96 %	0.67 %
Students on Campus: Medical	100	110	10 %	0.96 %
Students on Campus: Nursing	100	100	10 %	0.96 %
Other Students (PA, Pharma, etc.)	20	25	10 %	0.96 %
Non-MFP Related Contractors	25	25	--	--
TOTAL / AVERAGE	6,315	6,700	6.43 %	0.63 %

CAGR = Combined Annual Growth Rate

Assumptions:

- Daily inpatient discharges for 2016 estimated from annual count, using six-day weeks to accommodate for reduced activities Sun-Tue.
- Daily outpatient activity for 2016 estimated from annual count, using five-day weeks.
- Inpatient visitors estimated at 2.5 per patient for the base year of 2016.
- Outpatient visitors estimated at one per patient for the base year of 2016.
- 60% of employees are estimated to be on campus at one time for the base year of 2016.

IDENTIFICATION OF PROJECTS

In considering all possible scenarios for development to meet the goals outlined above, the Master Facility Plan has identified the following necessary projects needed to modernize of the MMC Bramhall campus:

- Vertical expansion of East Tower to add private, universal patient rooms;
- Removal of the Employee Garage, which is nearing the end of its structural lifespan;
- Construction of a new building in place of the Employee Garage that can provide new private, universal patient rooms and surgery suites in close proximity to the Emergency Department and the hospital's core diagnostic and treatment services located in the LL Bean Building;
- Providing a new patient entrance on Congress St that clarifies the arrival sequence for the majority of patients and visitors arriving on campus via Congress St, and parking in the Visitor Garage; and,
- Construction of a new Employee Garage within walking distance to campus will provide reliable access to parking spaces for all campus employees who choose to drive to work.

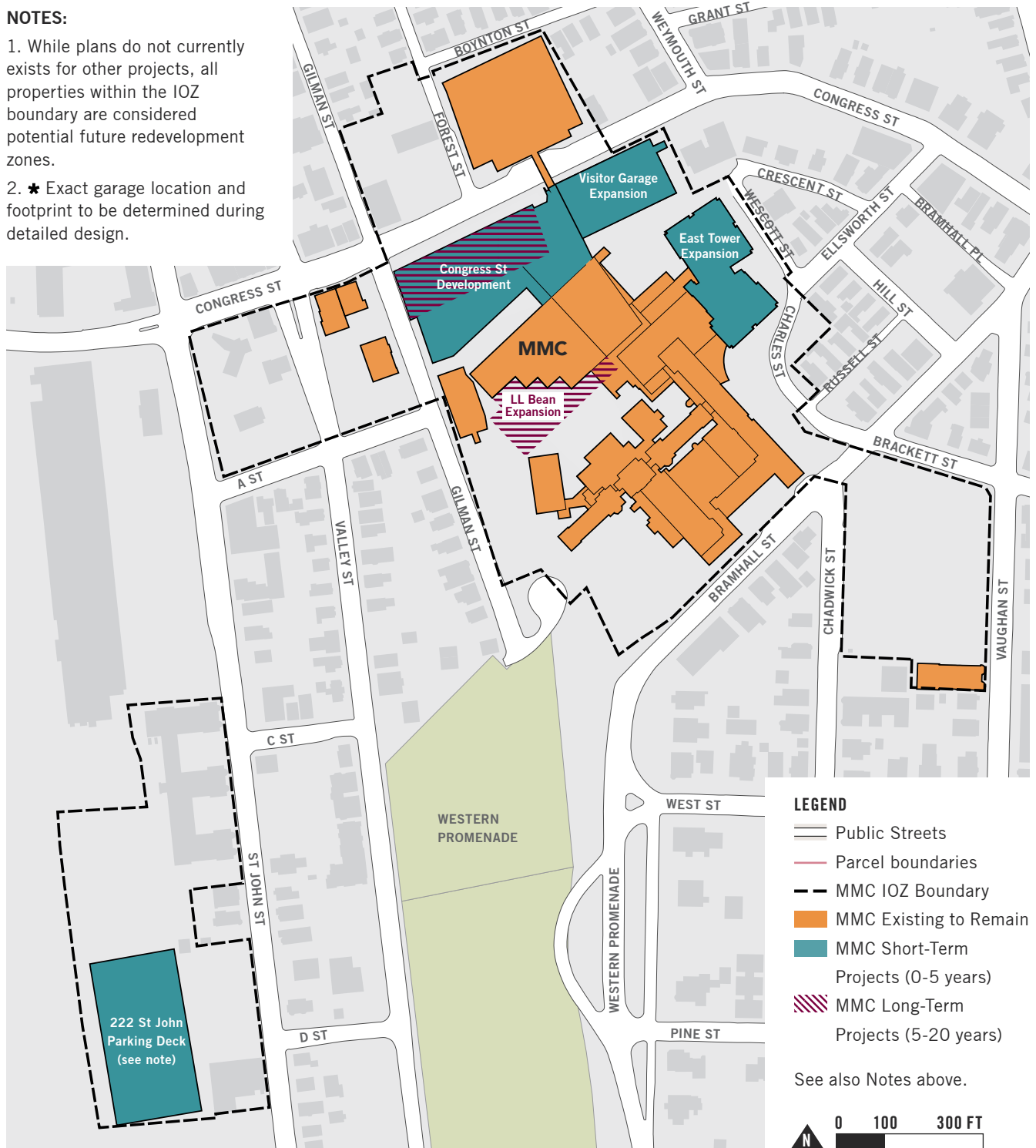
See **Fig.2.6** on the opposite page for an illustration of projects included in the Master Facility Plan.

The short- and long-term project plans do not represent the only projects within this timeframe. Due to the various factors impacting healthcare planning and their short horizons, there may be other projects proposed within this timeframe.

Fig.2.6 MMC Facilities Master Plan: Projects

NOTES:

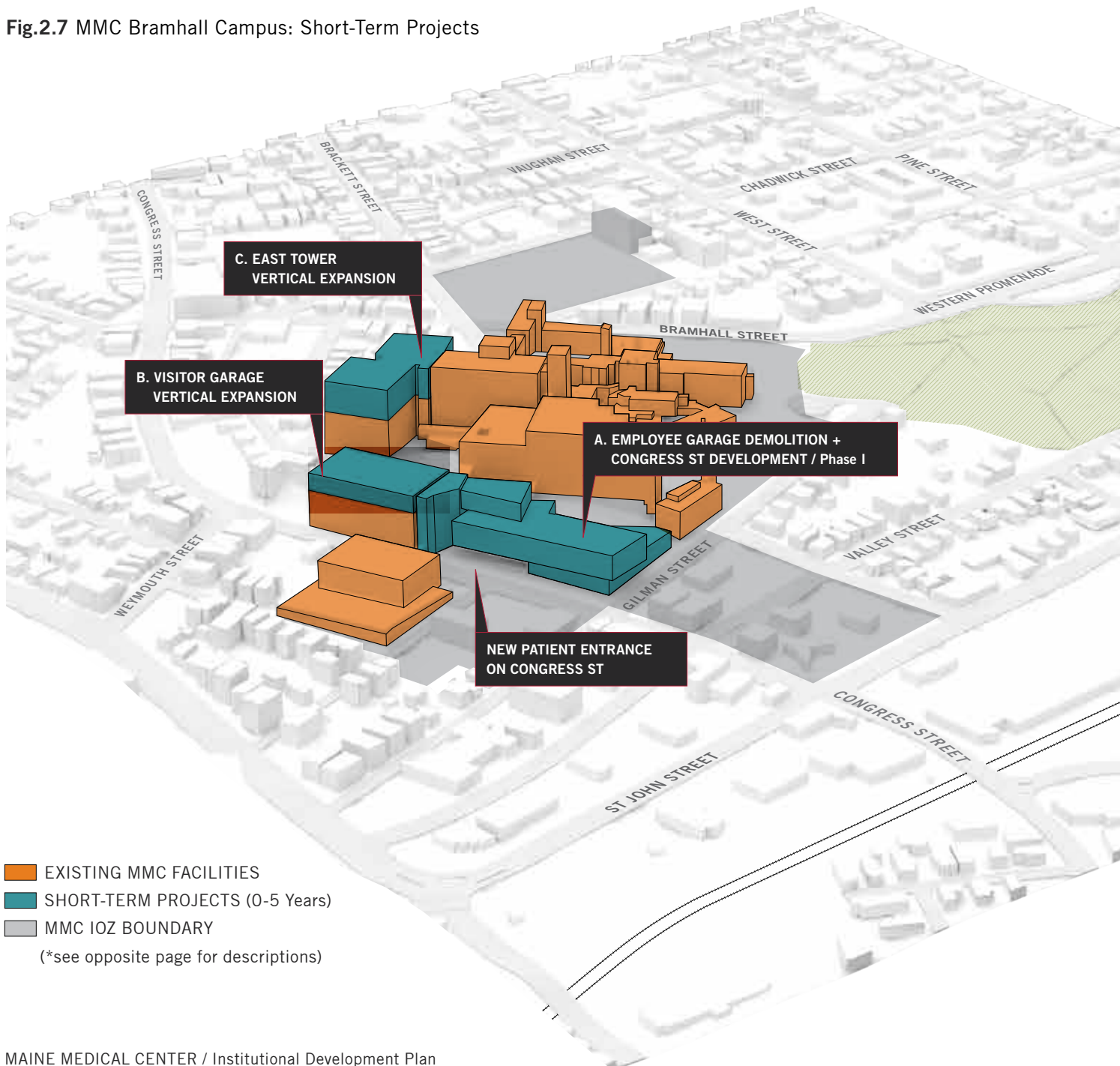
1. While plans do not currently exist for other projects, all properties within the IOZ boundary are considered potential future redevelopment zones.
2. * Exact garage location and footprint to be determined during detailed design.



SHORT-TERM PROJECTS (0-5 YEARS)

A series of short-term projects are in the planning stages to meet MMC's current needs and to improve the efficiency of care delivery. These do not represent the only projects that could be proposed within this timeframe: due to the various factors impacting healthcare planning and their short time horizons (0-3 years), there may be other projects proposed within this timeframe.

Fig.2.7 MMC Bramhall Campus: Short-Term Projects



Demolitions

A. Employee Garage Demolition

The 2015 building assessment does not recommend continued investment in this structure (see **Fig.2.5 on page 39**).

Additions / New Construction

A. Congress St Development, Phase I (285,000 GSF)

New six-story building along Congress St on former site of the Employee Garage, plus two-story connector to the LL Bean Building. Building program includes: a new patient entrance, universal, private inpatient beds and new procedure rooms. The new entrance changes the campus's orientation to Congress St.

B. Visitor Garage Vertical Expansion

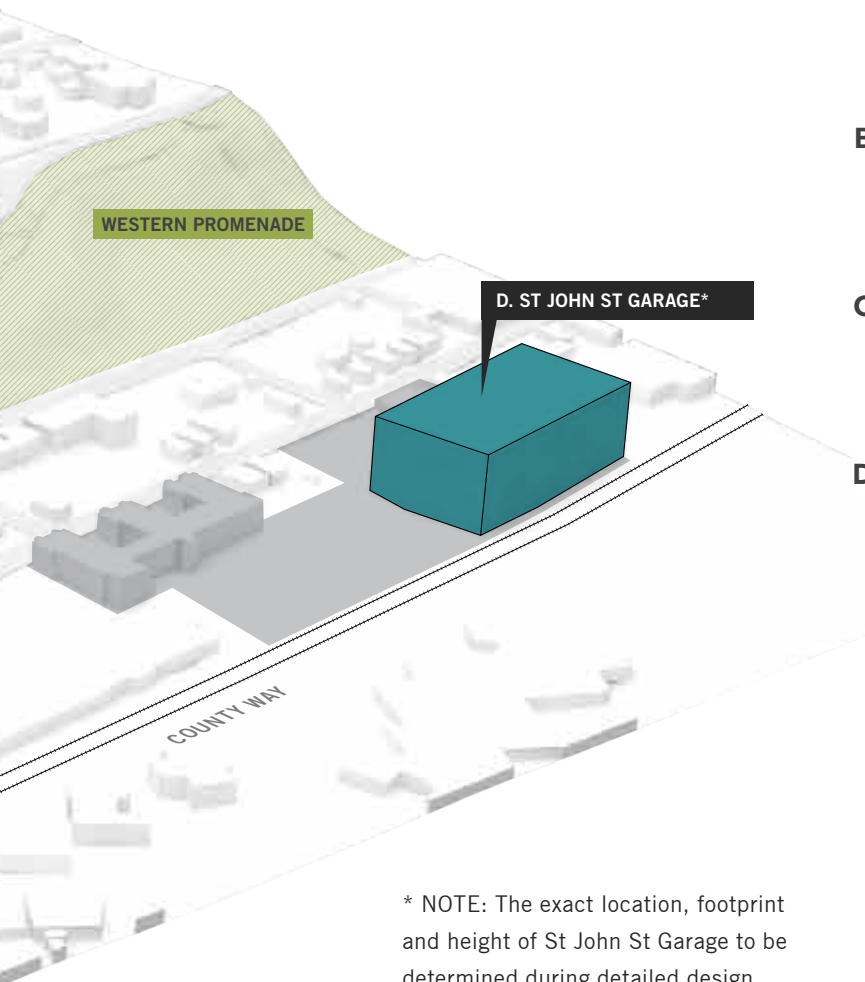
Addition of three floors at top to accommodate 225 new parking spaces.

C. East Tower Vertical Expansion (60,000 GSF)

Addition of two floors at top to accommodate 64 inpatient beds and relocated heliport.

D. St John St Garage

New 10-story, free-standing garage at 222 St John St to accommodate roughly 2,200 new parking spaces. The garage replaces spaces lost in the Employee Garage, in addition to consolidating parking from multiple surface lots owned or leased by MMC. (See **Chapter 3. Transportation Plan** for details).

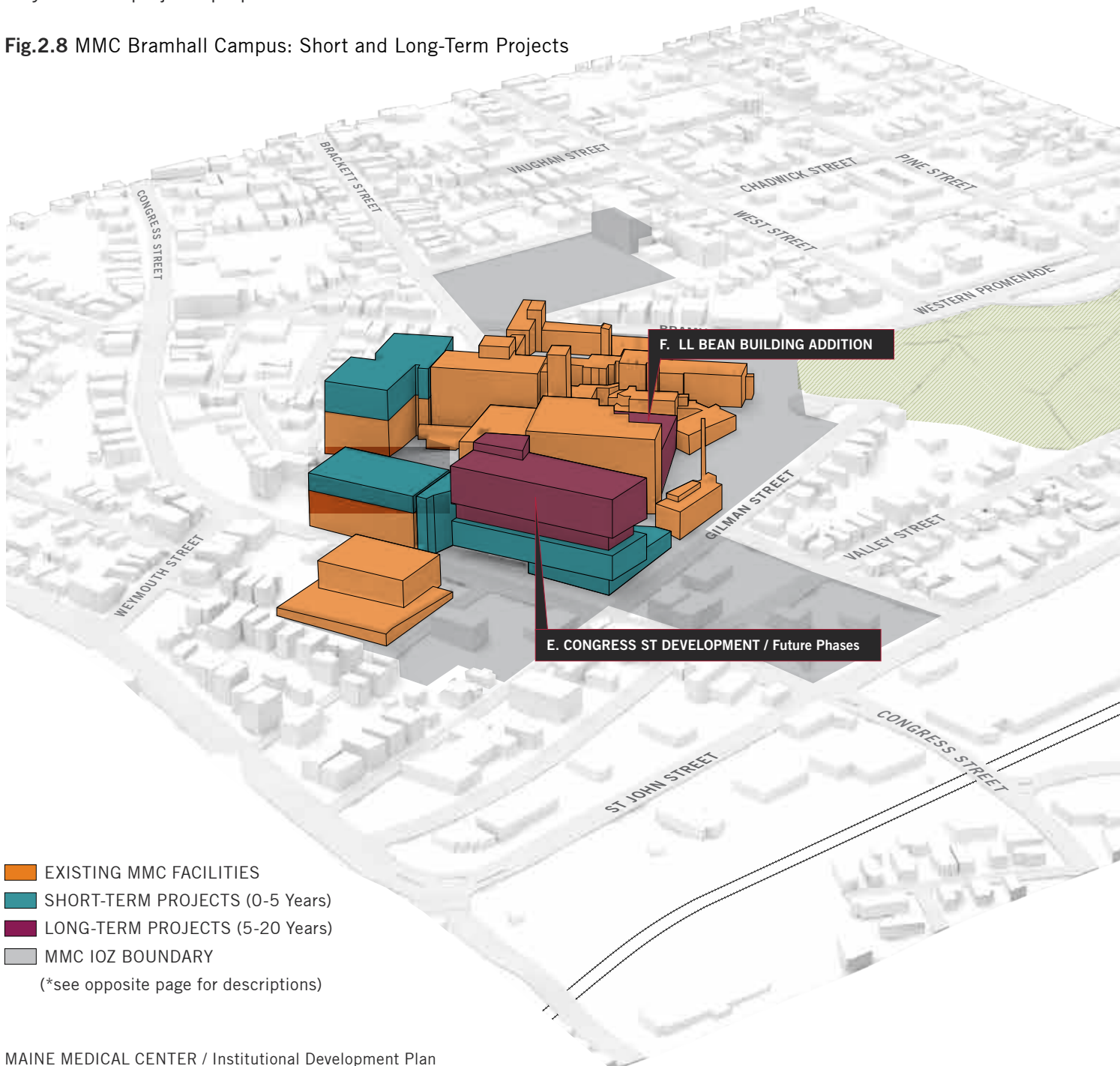


* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

LONG-TERM PROJECTS (5-20 YEARS)

The facility planning process has also identified potential long-term projects that are identified below. Given the changing nature of the healthcare industry, it is currently uncertain if these projects will be implemented. MMC will continue to evaluate its facility needs following the implementation of short-term projects by 2022. These do not represent the only projects that could be proposed within this timeframe: due to the various factors impacting healthcare planning and their short time horizons (0-3 years), there may be other projects proposed within this timeframe.

Fig.2.8 MMC Bramhall Campus: Short and Long-Term Projects



Additions / New Construction

E. Congress St Development, Future Phases (Approx. 300,000 GSF)

Future vertical expansion to include additional private inpatient beds.

F. LL Bean Building Expansion (Approx. 120,000 GSF)

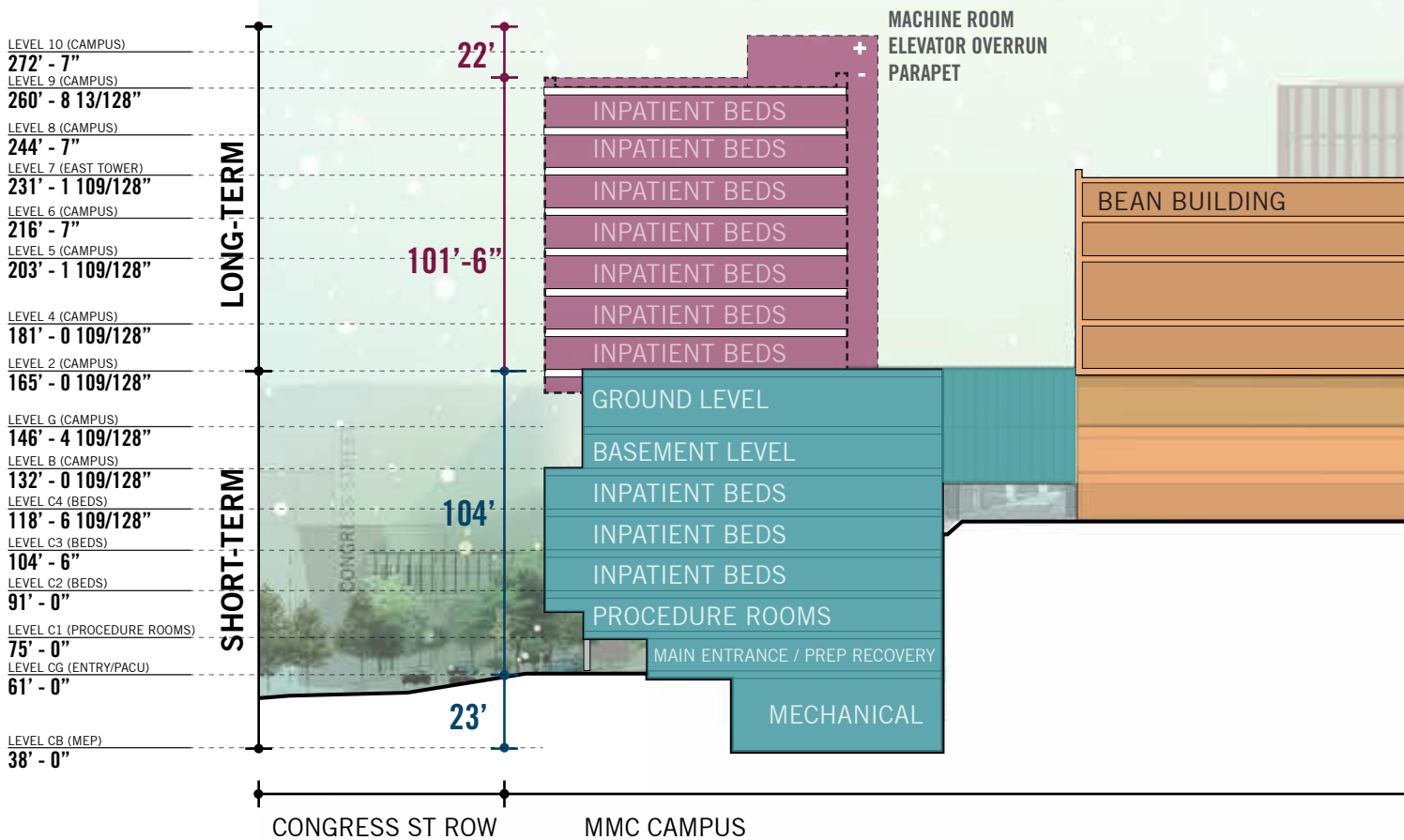
Expansion of diagnostics and treatment, and interventional platforms. If necessary, existing Laundry Building and Engineering Services Building may be modified or removed to facilitate expansion.

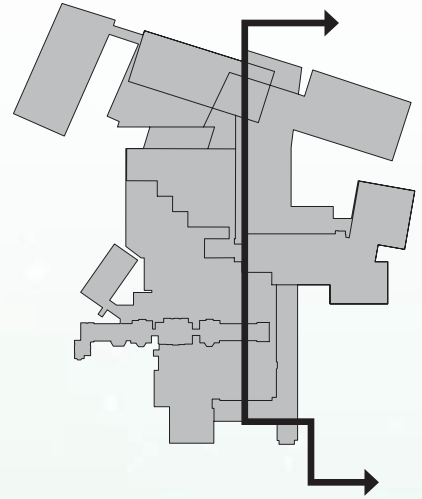
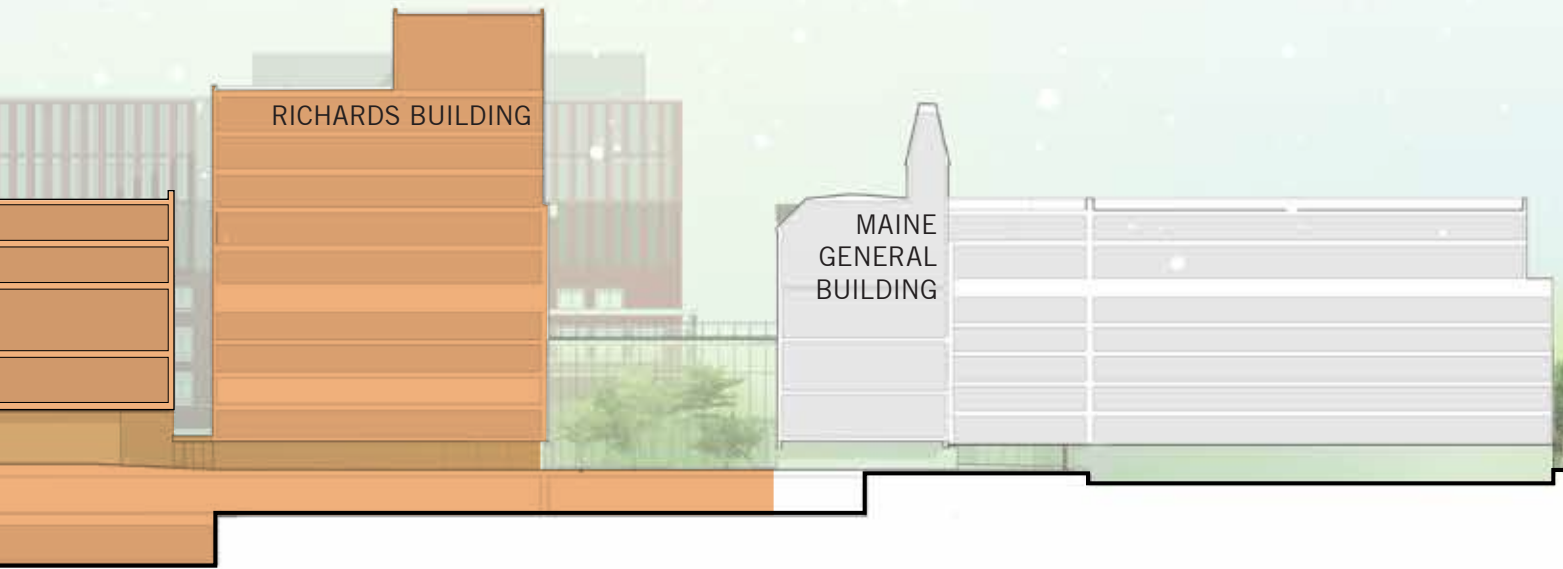


* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

Fig.2.9 MMC Bramhall Campus: Longitudinal Cross-Section through the Proposed Congress St Development

- EXISTING MMC FACILITIES
- CONGRESS ST DEVELOPMENT: SHORT-TERM (0-5 Years)
- CONGRESS ST DEVELOPMENT: LONG-TERM PROJECTS (5-20 Years)



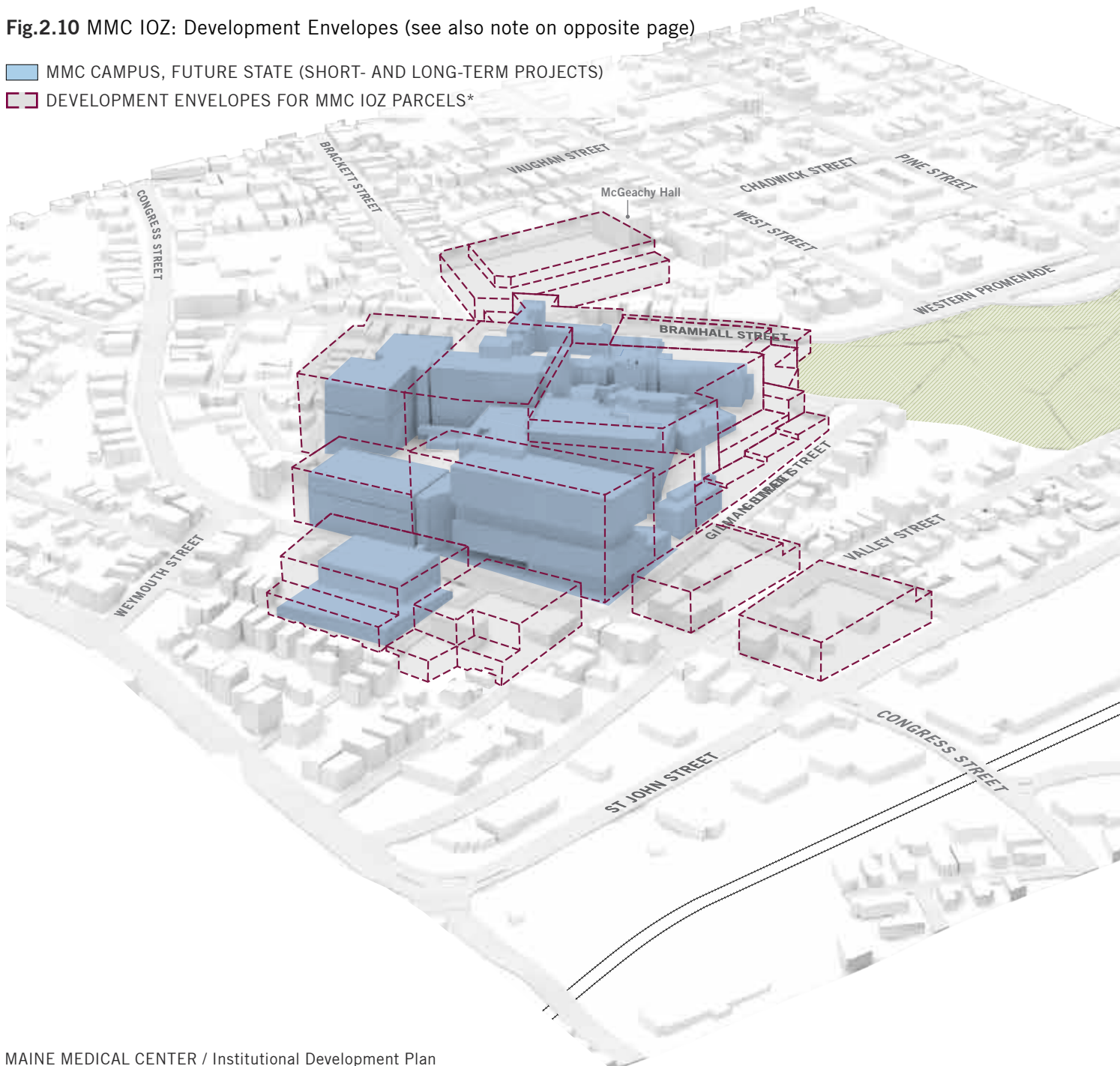


LONG-TERM DEVELOPMENT ENVELOPES

While MMC's Master Facility Plan does not identify specific projects other than those listed on the previous pages (see Fig.2.7 on page 42), all parcels included within MMC's IOZ boundary are considered to be potential zones for redevelopment that supports the effective delivery of healthcare services by MMC to our community in the long-term. Towards this end, MMC has identified context-appropriate uses (see **Table 2.5** at right), development envelopes and design criteria for all IOZ parcels.

Fig.2.10 MMC IOZ: Development Envelopes (see also note on opposite page)

- MMC CAMPUS, FUTURE STATE (SHORT- AND LONG-TERM PROJECTS)
- DEVELOPMENT ENVELOPES FOR MMC IOZ PARCELS*



NOTE: **Fig.2.10** illustrates the maximum height envelopes listed in the MMC IOZ Regulatory Framework. Per the IOZ, the development envelopes only apply to properties that MMC holds right, title, or interest at the time of development. All future development within the IOZ boundary is subject to review for compliance with guidelines and requirements included in MMC's IDP, Regulatory Framework and City of Portland site plan review requirements.

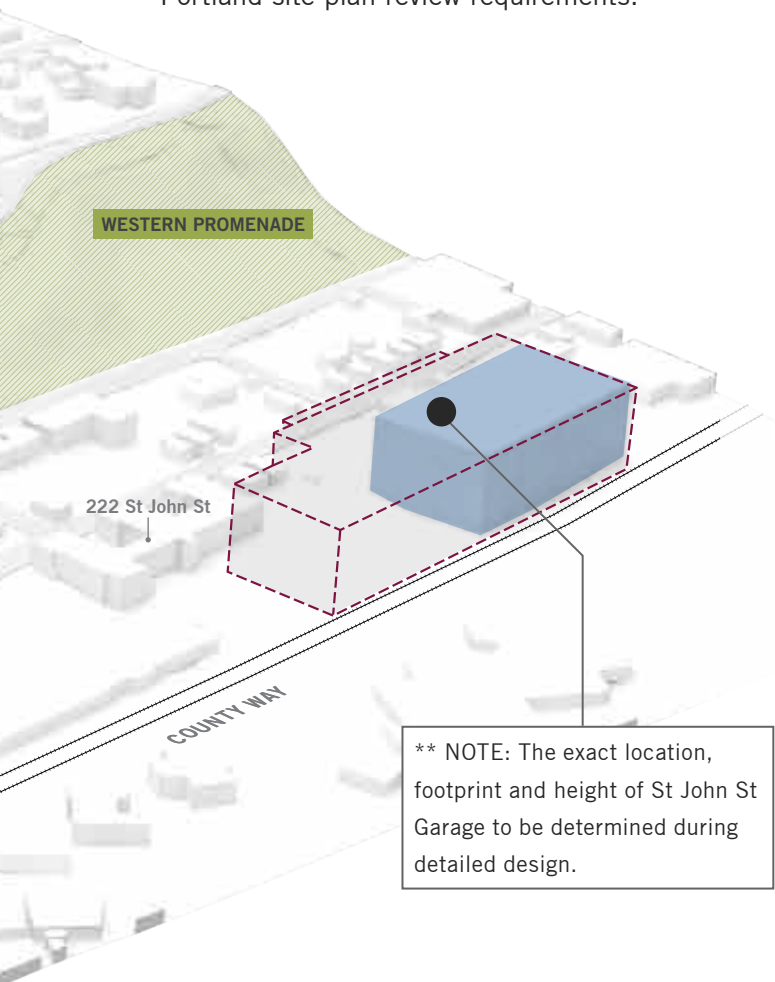


Table 2.5 MMC Potential Future Uses

MMC may locate the following uses within its IOZ boundary:

In addition to the uses permitted in the underlying zone, the following uses are permitted as a matter of right:

Healthcare facilities including but not limited to the following ancillary and/or supporting uses:

- Hospital
 - Medical Office / Clinic
 - Laboratory Center / Services
 - Research and Development (R&D) Laboratory or Facility
 - Educational Facility / Conference Center
 - Administrative / Business Office
 - Accessory Service or Trade Uses
 - Guest House
 - Multi-family housing for healthcare staff and students
 - Rehab / Skilled Nursing Facility
 - Retail Facility
 - Restaurant / Café
 - Employee Service Amenities
 - Day Care Center
 - Fitness Center or Gymnasium
 - Parking Lot
 - Parking Garage
 - Bicycle Storage
 - Heliport
 - Antenna Station
 - Outdoor use areas, such as green areas, parks, gardens, art installations, and other active and passive non-commercial recreation spaces
-

TRANSPORTATION PLAN

Maine Medical Center is developing a long-term transportation plan that will improve campus access, circulation, and wayfinding for patients and visitors. Ongoing initiatives are aimed at providing alternative transportation options to reduce traffic and parking impacts as well as to be responsive to neighborhood concerns about a large parking structure near residential properties.



TRANSPORTATION PLAN: OVERVIEW

Maine Medical Center is developing a long-term Transportation Plan that will improve campus access, circulation, and wayfinding for patients and visitors. It is also developing a Transportation Demand Management (TDM) plan focused on reducing the number of single occupancy vehicles on campus. Ongoing initiatives are aimed at providing alternative transportation options to reduce traffic and parking impacts.

MMC's Transportation and TDM plans are designed to address neighborhood concerns, and to improve campus access, circulation, and wayfinding for patients, visitors, physicians, and staff. The Transportation Plan will be developed and refined during the Maine Department of Transportation (MDOT) required Traffic Movement Permit (TMP) process, with input from the Medical Center's neighbors and City of Portland's traffic engineer. The TDM includes an explanation of the assessment of the Hospital's parking needs to adequately support the Bramhall Campus, and includes strategic initiatives aimed at providing alternative transportation options to reduce long-term traffic and parking impacts. The goal is to provide effective and intuitive transportation solutions that emulate best management practices in transportation infrastructure and operations that support tertiary academic medical centers, enhance and optimize the patient experience, and improve overall traffic flow in the surrounding area.

The purpose of this chapter is to provide an overview of the key transportation elements of the Transportation Plan and the TDM.

The Traffic Management Permit process may require modifications that MMC does not anticipate. The following provides MMC's best analysis of traffic generation and traffic patterns in the short term.

VEHICULAR ACCESS AND CIRCULATION

MMC's service area includes all of Maine and parts of New Hampshire. The majority of MMC patients and visitors do not live within walking distance or near public transportation and arrive by car (see **Fig.3.1 on page 57** for a map of patient origin). The nature and acuity of patient needs create a challenge to the use of alternative modes of transportation. This situation is not atypical for a hospital, but rather is the norm, even in locations with a robust public transit system.

MMC is open to patients every hour, every day of the year. Most MMC staff and physicians, who also fill shifts 24 hours a day, do not live within walking distance or near public transportation (see Fig.3.6 for a map of MMC employee residences). Work responsibilities that require the use of an automobile, a lack of transit options to accommodate staff schedules, seasonal weather extremes, and an insufficient bicycle infrastructure in the surrounding municipalities are all factors that contribute to a high drive share by staff.

EXISTING VEHICULAR FLOWS

Vehicle access and circulation on the MMC Bramhall Campus was planned and designed to maintain a safe and efficient transportation system. Most notably, the concept of separating patients, employees, emergency department operations and loading/service are all considerations that exist at MMC currently and have been approved by the City of Portland. Existing vehicular circulation patterns in and around the Bramhall campus are illustrated on **Fig.3.2 on page 58** and summarized below.

One advantage of its proximity to I-295 is the ease of vehicular access to campus by patients/visitors, employees, and emergency and service vehicles, and the avoidance of high traffic volumes in neighborhood streets.

Patients and Visitors

Patients and visitors have several choices when accessing the hospital. Through a strong wayfinding and signage plan, they are directed to park directly in the Patient / Visitor Garage or the South Lot. They also have access to a convenient patient drop-off area that is located off of Bramhall St, with direct access to parking in the South Lot.

Well-designed curbside drop-off / pick-up areas for patients and visitors are critical to the functionality of any medical center campus. These amenities provide the opportunity for patients and visitors to quickly reach their destination, without the need to park their vehicle, and in some cases, having to

walk long distances, often times unprotected from weather conditions.

MMC provides both inpatient and outpatient care at the Bramhall campus. Outpatient care services experience higher curbside demands for patient drop-off / pick-up activities because of the shorter visits whereas inpatient care generates less turnover, but requires greater accessibility. In addition to general patient access and egress by private vehicles, MMC drop-off / pick-up zones also experience other demands created by taxis (including ride-share such as Uber, Lyft, etc.), shuttle buses, short-term deliveries (like flowers, etc), and staff—vehicles that do not necessarily park, but intend to only drop-off passengers and then exit the hospital campus.

Emergency Department Access

MMC’s Emergency Department (ED) is located near the main entrance but is clearly delineated and separated from it. Within the ED area, ambulances have their own dedicated area and are separated from patient ED access and short-term ED parking.

Staff Access

Staff primarily park in the Employee Garage, which is located on Congress St with access off of Gilman St. Other employee parking locations include the various satellite lots listed in **Fig.1.7 on page 22**. This design limits the mixing of patient and staff traffic, resulting in fewer staff vehicles near patient access zones.

Service Access

Trucks destined for MMC are directed to a dedicated loading and service facility located off of Gilman St, separate from all active patient access and circulation functions. MMC does not accept large deliveries from any location other than through the loading dock area.

EXISTING TRAFFIC CONDITIONS

An analysis of existing traffic conditions on and around the Bramhall Campus was completed by Gorrill Palmer, a South Portland based land development, transportation and municipal engineering firm. Gorrill Palmer observed several street intersections during the morning and afternoon in December 2016. In order to estimate the peak summer traffic volume on the two busiest intersections observed (Congress St / St John St and Congress St / Valley St), trip counts were increased by 1.1% on St John St and 11.4% on Congress St. The trips observed are summarized on **Table 3.1** below.

Table 3.1 Seasonally Adjusted 2016 Volumes

INTERSECTION	2016 ESTIMATED VOLUMES		MMC TRAFFIC AS A PERCENT OF TOTAL TRAFFIC	
	AM	PM	AM	PM
Valley St. / Congress St.	1,170	1,200	17%	7%
Congress St. / Saint John St.	1,860	2,100	14%	7%

Fig.3.1 Dot Density Map Showing Patient Origin by Zipcode (2016)

LEGEND
● 10 patients
— State Boundaries

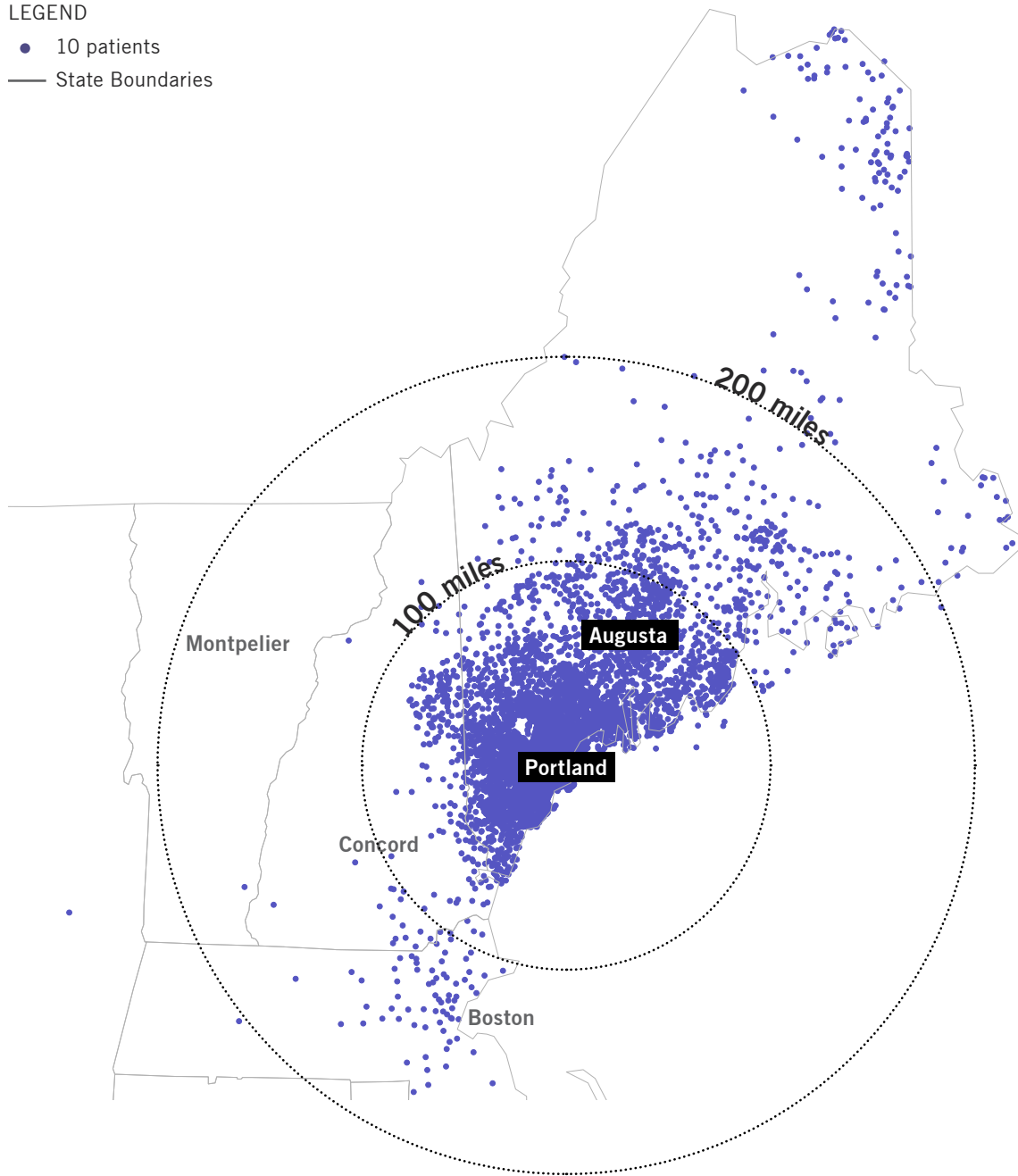


Fig.3.2 MMC Existing Circulation Routes and Access Points

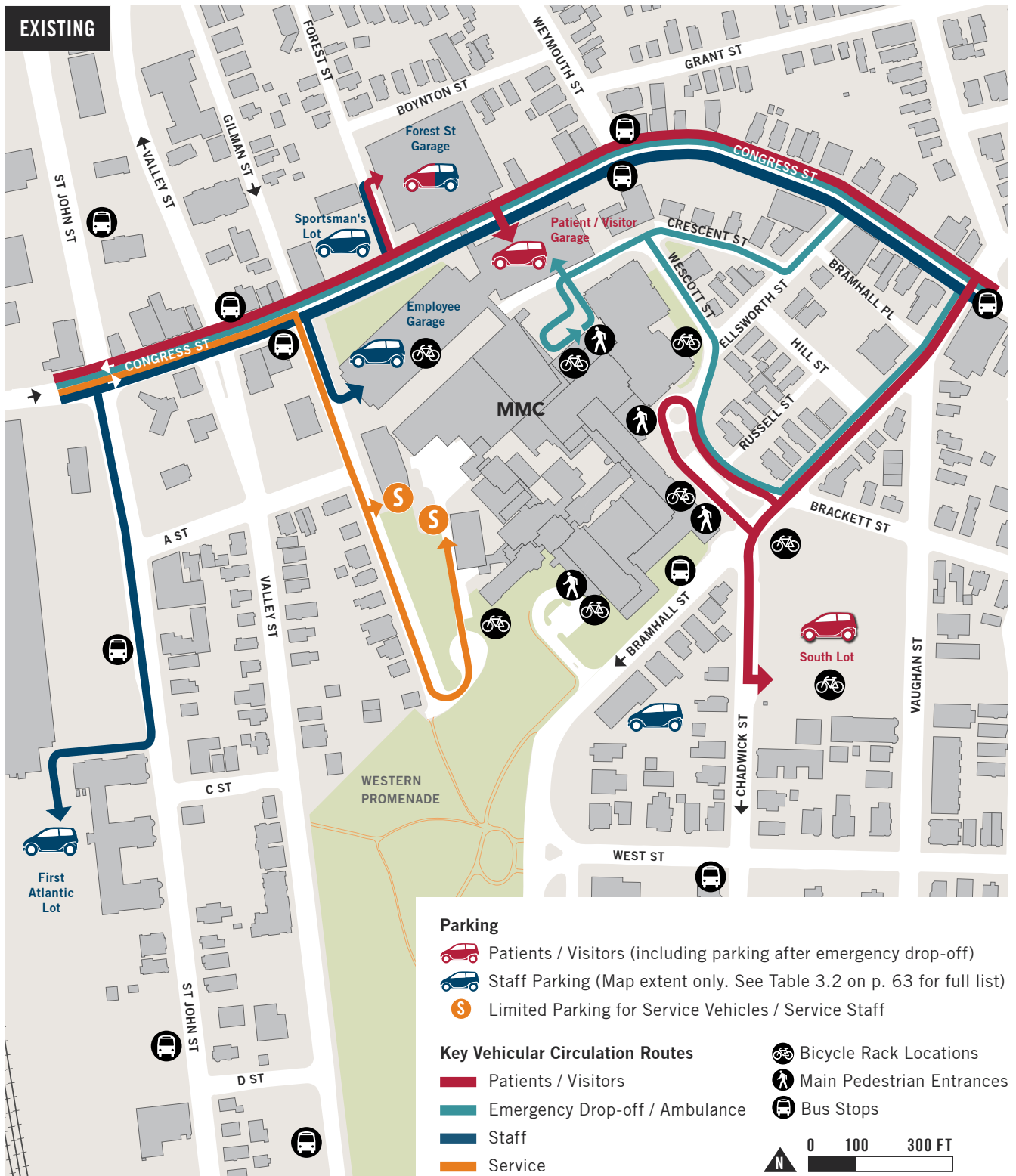
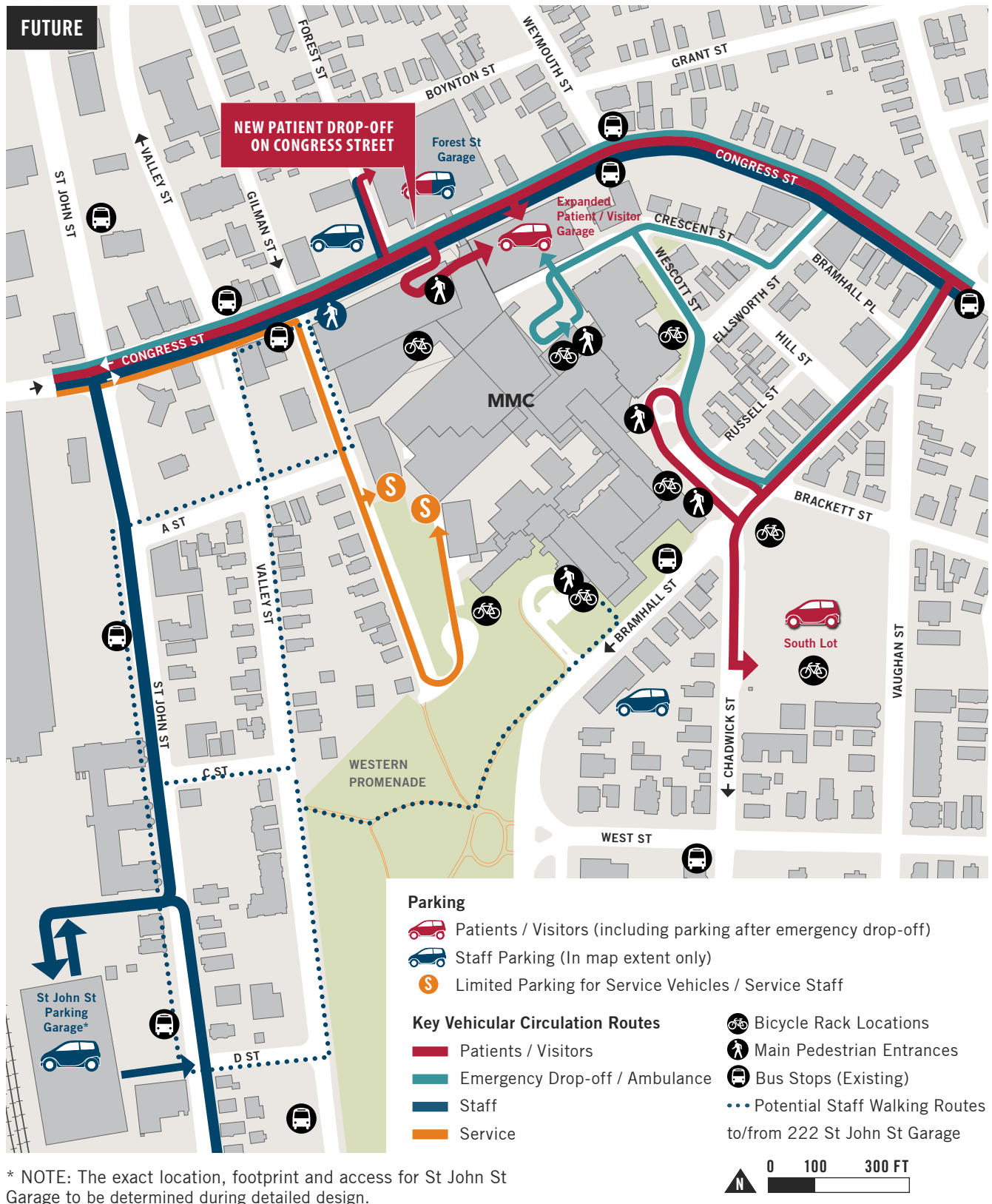


Fig.3.3 Transportation Plan (Future): Circulation Routes and Access Points



The safety evaluation considered crash data provided by MaineDOT for the period of 2014-2016, the most recent available at the time the analysis occurred. In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order for a location to be classified as an HCL:

1. A critical rate factor (CRF) of 1.00 or more for a three-year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average, and:
2. A minimum of eight crashes over the same three-year period.

Based on the crash data provided by MaineDOT, the HCLs in the vicinity of the site are: the intersection of Congress St with Bramhall St and Deering Ave, the intersection of Congress St with Gilman St, the intersection of Park Ave with Valley St, Congress St from Forest St to Weymouth St, and St. John St from Congress St to just south of Park Ave.

PROPOSED MODIFICATIONS TO ACCESS AND CIRCULATION

Proposed New Entrance

MMC's short-term projects include a new entrance on Congress St to improve access and egress for patients and visitors. Today, most motorists arrive on campus via Congress St: they either park off

Congress St in the Patient / Visitor Garage, or use Bramhall St to reach the emergency room or entrance on Charles St, which also allows access to the Patient / Visitor Garage on an upper floor.

It is anticipated that the new Congress St entrance will be used primarily by vehicles dropping off or picking up patients, shuttle buses, or short-term deliveries (like flowers, etc). The entrance will be designed to allow vehicles to either exit back onto Congress St or directly enter the adjacent Patient / Visitor Garage after passing through the drop-off zone without having to go back onto the public street. The Charles St entrance (at the East Tower) will remain open and continue to accommodate some defined patient demand. Changes to patient / visitor circulation and the impacts on Congress St traffic operations will be studied as part of the Traffic Movement Permit Application (TMP) process.

The new entrance on Congress St is expected to improve access to the campus while reducing vehicular traffic on neighborhood streets. Work is currently underway to identify design options for the new entrance and drop-off that minimizes impact on existing pedestrian, bicycle, transit and vehicular traffic along Congress St. The proposed site plan will be reviewed as part of the State's Traffic Movement Permit (TMP) Application during the City's Site Plan review process.

Proposed Employee Parking

As part of MMC's short-term projects, the existing Employee Garage will be demolished. MMC is collaborating with a third-party developer to build a 2,200 space parking garage at 222 St John St. All staff parking will be consolidated to this new location.

PROJECTED TRAFFIC IMPACT

As mentioned previously, the traffic impacts of the MMC Short-Term Projects will be studied comprehensively as part of the Maine Department of Transportation (MaineDOT) Transportation Movement Permit (TMP) application process delegated to the City of Portland.

Some of the traffic items reviewed as part of the TMP will include:

- Trip generation methodology.
- Trip distribution assumptions.
- Weekday morning and evening traffic operations/capacity analyses.
- Average and 95% queue analyses for key intersection approaches.
- Pedestrian and bicycle safety evaluations.
- Identification of potential mitigation to address identified deficiencies created or exacerbated by the proposed development.

A high-level analysis of the projected changes in traffic as a result of estimated growth in the City of Portland and MMC's short-term projects was

completed. Traffic volumes in the vicinity of MMC's Bramhall campus are anticipated to increase by approximately 3.5% between 2016 and 2023, without any MMC development, due to background traffic growth throughout the City. This increase is based on an estimated growth of 0.5% per year and compares the 2016 traffic volumes to the 2023 Pre-development traffic volumes (with no MMC development).

If the MMC employees utilize the 222 St John St garage, then traffic volumes at the intersection of St John Street / Congress Street may increase by approximately 17% and traffic volumes at the intersection of Valley St / Congress St may decrease by approximately 5% during peak commuter hours between 2016 and 2023. This increase compares the 2016 (seasonally adjusted) predevelopment traffic volumes to the 2023 Postdevelopment traffic volumes (with MMC development). This change in traffic volumes is due to the additional garage traffic (i.e. MMC expansion), the relocation of the existing employee garage traffic from Gilman Street to St John Street, and the background City traffic growth.

In 2023, the development of the employee parking garage at 222 St John St may increase total traffic volumes at the intersection of St John St / Congress St by approximately 12% during the peak commuter hours and approximately 56% during the peak hours of MMC shift changes that primarily occur during non-peak commuter hours. This is the increase

between 2023 Predevelopment volumes (with no MMC development) and 2023 Postdevelopment volumes (with MMC development). This increase is due to the additional garage traffic and the relocation of existing employee garage traffic from Gilman to St. John. Although the percentage increase during the peak hour of MMC shift changes appears high, the traffic volumes during the non-commuter peak hours with additional MMC development are still lower than the volumes during the peak hours of commuter traffic without significant additional MMC development.

MMC's traffic volume is expected to decrease at other intersections near satellite parking locations as a result of consolidating parking at 222 St John St. Although traffic due to MMC is anticipated to decrease at intersections near the satellite parking lots, total traffic volumes at those intersections may not change significantly, since different users may still utilize the lots. However, regardless of traffic volumes, there will be less vehicle miles travelled on the roadway network, since MMC employees will no longer be driving around the streets seeking out the last remaining parking spaces.

PARKING

MMC offers its patients, visitors, physicians, and employees several options for parking. MMC currently controls approximately 2,877 total off-street parking spaces either via ownership or through leases with others that specifically serve the Bramhall Campus. Of the 2,877 spaces, 2,027 parking spaces are subscribed to staff and physicians. About 1,538 of these employee parking spaces are located on the Bramhall Campus..

In addition to their on-campus parking spaces, MMC controls an additional 489 spaces for employees in remote parking facilities that serve the Bramhall Campus. Off-site spaces that are used by employees require shuttle services to the Bramhall Campus by dedicated shuttle services. **Table 3.2** on the following page provides a summary of existing MMC parking facilities. MMC has continued to see demands on the existing supply intensify due to increased patient volumes and higher acuity patients (longer lengths of stay).

In order to assess MMC's existing and future parking demand, a nationally recognized consulting firm was hired that specializes in this work. Vanasse Hangen Brustlin, Inc. (VHB) began working with MMC in January 2017. VHB also has done work for the City of Portland.

EXISTING PARKING ANALYSIS

The existing parking garages and surface lots are not equipped to readily collect and compile entrance, exit, and occupancy data electronically. As a result, in order to collect baseline data,

Table 3.2 Existing Parking Spaces

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS 850 patient / visitor 1,538 employee spaces	Employee Garage	0	1,274	1,274	Owned
	Patient / Visitor Garage	480	0	480	Owned
	South Lot	370	0	370	Owned
	887 Congress (Forest St Garage)*	0	178	178	Owned
	7 Bramhall St	0	26	26	<i>Leased</i>
	905 Congress St (Sportsman Lot)	0	60	60	<i>Leased</i>
OFF-CAMPUS 489 employee spaces	222 St John St (First Atlantic Lot)	0	283	283	<i>Leased</i>
	181 High St (Gateway Garage)	0	100	100	<i>Leased</i>
	993 Congress St (Classic Lot)	0	97	97	Owned
	321 Brackett St	0	9	9	<i>Leased</i>
TOTAL PARKING SPACES		850 Patient / Visitor	2,027 Employee	2,877 Total	

* The Forest St Garage has an additional 222 spaces that are dedicated to medical office staff and patients.

detailed hourly parking occupancy counts were conducted on March 8, 2017 and March 9, 2017 by VHB. The goal of these parking counts was to collect temporal parking data at the Employee garage, the Patient / Visitor garage, and the South Lot to confirm parking surge (between daytime and evening staff shift changes) and overnight demand. Hourly counts were conducted from 5am to 12pm, 3pm to 8pm, and 10pm to 12am. This data have been compiled to quantify the existing conditions parking demand estimates.

Additional parking occupancy counts were conducted daily between April 24, 2017 and April 28, 2017 at 10am and 2pm by MMC. MMC parking was 93% occupied throughout the week.

Overall, existing parking demand conditions at MMC were quantified via a combination of distinct actions:

- Weekday occupancy parking counts were conducted to understand utilization at key points in time to assess peak occupancy, overnight occupancy, and intervals of weekday garage entries and exits. These counts were conducted in March and April 2017.
- Intermittent spot checks of parking utilization and access/egress were conducted from January through March 2017 by MMC and its consulting team.

- MMC Parking and Security staff and the City of Portland Parking Director provided input regarding their observations and experiences relating to the utilization of parking.

These counts, observations and input indicate that the parking system typically operates at or above capacity during weekday daytime.

CURRENT PARKING SHORTAGE

MMC's 850 patient/visitor parking spaces equates to +/- 1.33 parking spaces per bed. This is low when compared to other New England and national peers. Patient drive rate is consistently high among large academic medical centers regardless of location. Therefore it is appropriate and reasonable to compare MMC patient parking needs on a space per bed basis to highly urban, suburban, and rural settings. MMC would need about 340 additional patient/visitor parking spaces to achieve the midpoint parking space/bed ratio (approximately 1.87) of its peers.

MMC's 2,027 staff parking spaces equates to about 3.18 parking spaces per bed. This ratio is also low when compared to other peer institutions. When studying employee parking needs, it is important to compare institutions that would reside in similar contexts where driving behavior and auto mode shares would be similar.

During the analysis, MMC's consultant team attempted to identify comparable medical centers.

A significantly similar comparison medical center does not exist due to the number of factors impacting parking. The medical centers that were determined to be somewhat similar and adequate comparisons had median parking ratios of 1.87 for patients/visitors and 4.38 for employees.

Under current conditions, MMC will require 150-200 additional on-campus parking spaces to alleviate current staff parking shortfalls that have been estimated via observations and data collection activities and eliminate on-street parking by MMC staff. To help existing demand pressures, MMC continues to pursue a number of strategies to address its constrained parking situation, including:

- The study of enhanced Transportation Demand Management (TDM) actions to reduce single-occupancy vehicle trips and parking demand,
- Moving employees to off-campus locations (both program and parking), and,
- Securing additional remote parking and serving that remote parking with convenient shuttle services for staff.

MMC's existing decentralized parking solution creates management challenges and is an employee dissatisfier. Management challenges include multiple shuttle routes that add to traffic congestion on Portland's streets and the high cost of servicing and operating multiple shuttles. MMC employees frequently share that the employee parking at the Bramhall Campus is unreliable. There are eight

parking locations available for MMC employees. When one location is full, employees have to search other locations for available parking which adds to traffic congestion on Portland's streets. On days when MMC is near or at capacity, finding a parking spot in a reasonable amount of time is a challenge.

PLANNING GOALS FOR PARKING

With regard to Parking, MMC's goal is to accomplish the following key objectives:

1. Support a predictable arrival experience for patients and visitors,
2. Where feasible, allow for segregation of MMC patients/visitors and staff parking,
3. Address neighborhood concerns of MMC staff occupying on-street parking spaces,
4. Provide a parking supply that is sufficient to support the Medical Center,
5. Rely upon an enhanced TDM program to help reduce vehicle trips and parking demands when reasonably feasible.

FUTURE DEMAND PROJECTIONS

Future patient, visitor, staff and physician parking needs were quantified based on an assessment of MMC's patient volume (inpatient and outpatient activity) and staff growth projections. The demand for patient care at MMC is growing as described under "**Projected Daily Census**" on page 40.

MMC anticipates that the overall patient demand will grow by approximately 8 percent over the next ten years (or 0.75 percent per year). Similarly, employment at MMC is expected to grow by

approximately 7 percent over the next ten years (or 0.7 percent per year). We expect patient and patient-related and employee parking demand will increase at similar rates. This demand will be offset by Transportation Demand Management methods described later in this chapter. These expected trends have been used to estimate the increased parking needs of the Hospital.

The following key points summarize MMC parking activity under current conditions, and provide the context for assessing and understanding the parking objectives that are proposed for the transportation plan:

- Under current conditions, the MMC parking system typically operates at or above capacity during weekday daytime hours.
- The hospital requires about 150-200 additional on-campus parking spaces to alleviate current 2017 staff parking shortfalls. These estimates are based on several iterations of counts, observations, and input from MMC, as described previously.
- When compared to other peer academic medical centers, MMC generally has a lower parking-to-licensed bed ratio both for its patients as well as its physicians and staff. There is not an industry standard method for comparing hospital parking supply. The number of patient beds was used as the common factor in this analysis because of its relative uniformity among academic medical centers.

PROPOSED MODIFICATIONS TO PARKING

MMC's short-term projects include:

1. Patient / Visitor Garage Addition: MMC will expand its existing 480-space Patient / Visitor Garage by three levels to accommodate an additional 225 spaces by 2019.
2. New St John St Garage: MMC will deconstruct the existing 1,274-space Employee Garage and will construct a replacement garage that will supply approximately 2,200 spaces for MMC. MMC intends to provide a reliable and complete parking solution for employees.

FUTURE PATIENT / VISITOR PARKING

Once the Patient / Visitor Garage Addition is completed, the patient parking supply will be adequate to meet the growing needs of the patients and visitors.

MMC's short-term projects will increase patient/visitor parking supply from 850 spaces to 1,075 spaces. As a ratio of parking spaces per bed, MMC's on-campus patient parking system will improve from an existing ratio of 1.33 (a rate that is low when compared to peers) to 1.68 (average to its peers).

FUTURE EMPLOYEE PARKING

In total, MMC estimates a need for 500-600 additional staff/physician parking spaces to accommodate future demands and resolve the existing parking shortage. The 2,200 employee parking spaces in the new St John St Garage are intended to accomplish the following:

- Accommodate expected staff growth,
- Provide for replacement parking to support demolition of the existing Employee Garage,
- Consolidate existing remote surface parking, and
- Reduce parking by staff on surrounding neighborhood streets.

This increase in employee parking supply will improve MMC's ratio of employee parking to patient beds from their existing ratio of 3.18, which is very low when compared to peer academic medical centers.

The proposed St John St Garage will consolidate the majority of MMC's employee parking which will improve employee satisfaction and minimize management challenges. A smaller and more reliable shuttle service will be available to MMC employees getting to and from the parking garage. In addition, the St John St location is 3 tenths of a mile from the Bramhall Campus and MMC will encourage walking.

ALTERNATIVE TRANSPORTATION

MMC supports and aims to increase the use of alternative transportation by its employees, patients and visitors through the implementation of its Transportation Demand Management (TDM) Plan outlined on page 74. Ongoing collaboration with the City of Portland, local and regional transit agencies, and neighborhood and advocacy organizations is planned to ensure the improvement of pedestrian, bicycle and transit infrastructure and networks serving the campus.

MMC solicited input from neighbors on the topics of vehicular, bicyclist and pedestrian safety around the campus at its January 12, 2017 Open House. Key findings from this meeting are summarized at the end of this section under the heading "Future Transportation Planning Considerations." MMC has shared the Open House results with the City of Portland and neighborhood representatives. MMC will continue working with neighbors, City staff, and elected officials to address vehicular, pedestrian and bicyclist safety concerns around its campus as part of its ongoing community engagement process (see page 130).

PUBLIC TRANSIT ACCESS




METRO provides bus service throughout the Greater Portland region and makes stops within walking distance to the MMC Bramhall campus. The campus is also served by the ZOOM Turnpike Express route operated by ShuttleBus–ZOOM.

Multiple METRO routes accessible from the campus provide connections to the nearby Portland Transportation Center (PTC) and the Downtown Hub, which are served by additional METRO and regional bus lines. The PTC also serves as the local connection to Amtrak's Downeaster service that runs along the coast between Boston and Brunswick. See **Fig.3.4** and **Table 3.3** on the following pages for an illustration of bus routes and bus stops within walking distance of the MMC campus. All buses serving the campus are equipped with bike racks to enable multi-modal commutes.

MMC supports mass transit commutes and provides financial incentives to employees choosing public transit as part of its Transportation Demand Management (TDM) program. MMC will provide enhanced incentives and work with METRO to improve transit access for all campus users as part of its future TDM Plan. See "Supporting Mass Transit Commutes" on page 78 for details.

Detailed design of each new development on campus will consider the location of nearby transit stops, and identify any necessary changes to locations to better serve transit users.

Fig.3.4 Map of Existing Transit Routes and Stops

-  MMC Main Pedestrian Entrance
-  Bicycle Rack Locations
-  Existing Bus Stops around Campus (see opposite page for transit route legend)

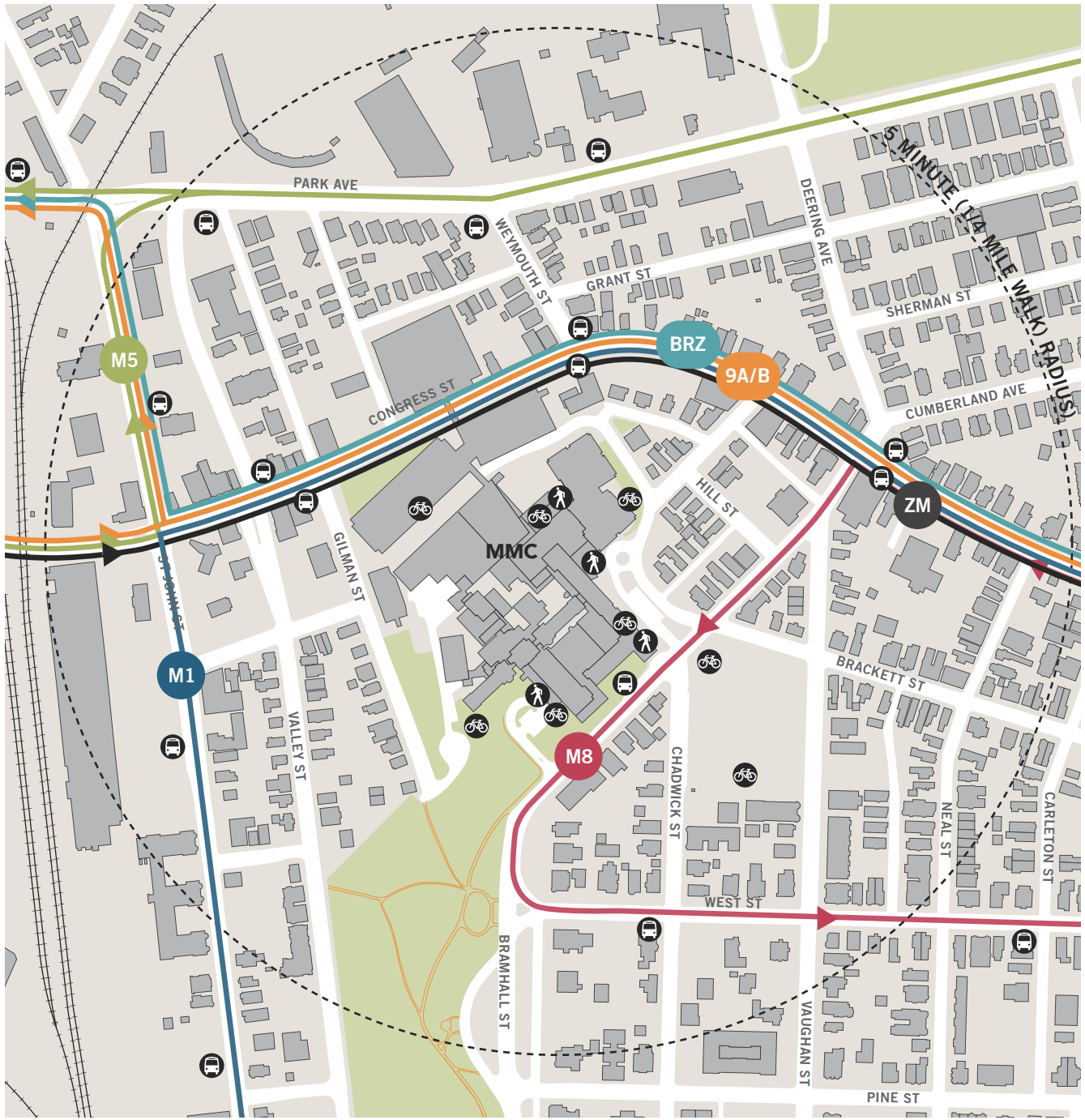


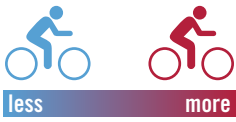
Table 3.3 Bus Routes Serving MMC Bramhall Campus

The following bus routes are accessible within a five minute walk of the MMC campus. See **Fig.3.4** on opposite page for location of routes and bus stops.

- M1**
M1 – CONGRESS STREET
 Connection to Portland Transportation Center (PTC), Downtown, Munjoy Hill and Eastern Promenade
- M5**
M5 – JETPORT / MAINE MALL
 Connection to Downtown, Hannaford Plaza, Maine Mall and Portland Jetport
- M8**
M8 – PENINSULA LOOP
 Connection to Downtown, Franklin Towers, Whole Foods Plaza and Hannaford Plaza
- 9A/B**
M9A / 9B – NORTH DEERING VIA STEVENS AVENUE
 Connection to MMC Brighton campus, Highlands, Rosemont, and North Deering
- BRZ**
METRO BREEZ EXPRESS (BRZ)
 Connection to PTC, Downtown, Falmouth, Yarmouth, Freeport
- ZM**
ZOOM Turnpike Express (ZM)
 Connection to Biddeford and Saco

Rte #	Closest Stop	Times of Operation	Headways
M1	Congress St	5:35am to 11:10pm (M-F) 7:45am to 6:05pm (Sat) 8:10am-6:35pm (Sun)	Varies between every 30 minutes during daytime to every 45 minutes late evenings
M5	St John St	5:30am to 10:45pm (M-F) 6:05am to 10:45am (Sat) 7:55am to 6:40pm (Sun)	Varies between 25-35 minutes during weekdays (daytime) to every 40-45 minutes on weekend evenings
M8	Bramhall	6:40am to 6:00pm (M-F) 7:50am to 6:17 pm (Sat) 9:35am-4:17pm (Sun)	Varies between every 30-40 minutes during weekdays to every hour during weekends
M9A/9B	Congress	5:35am to 10:35pm (M-F) 7:35am to 10:30pm (Sat) 8:35am-4:35pm (Sun)	Varies between 10 minutes on weekday mornings to every 1 hours on weekends and evenings
BRZ	Congress	6:00am to 7:45pm (M-F) 8:20am to 6:10pm (Sat) No Sunday Service	Varies between 45 minutes on weekday mornings to every 2 hours on Saturdays
ZOOM	Bramhall and Congress	6:00am to 6:40pm (M-F) No Weekend Service	5 buses in the morning b/w 6am-8:17am 6 buses in the afternoon b/w 2:46pm-5:35pm

Fig.3.5 Heatmap Showing Popular Bicycle Routes in the Area, as Recorded by Strava App Users



Source: Based on self-tracking app data mapped by Strava Labs (labs.strava.com/heatmap)

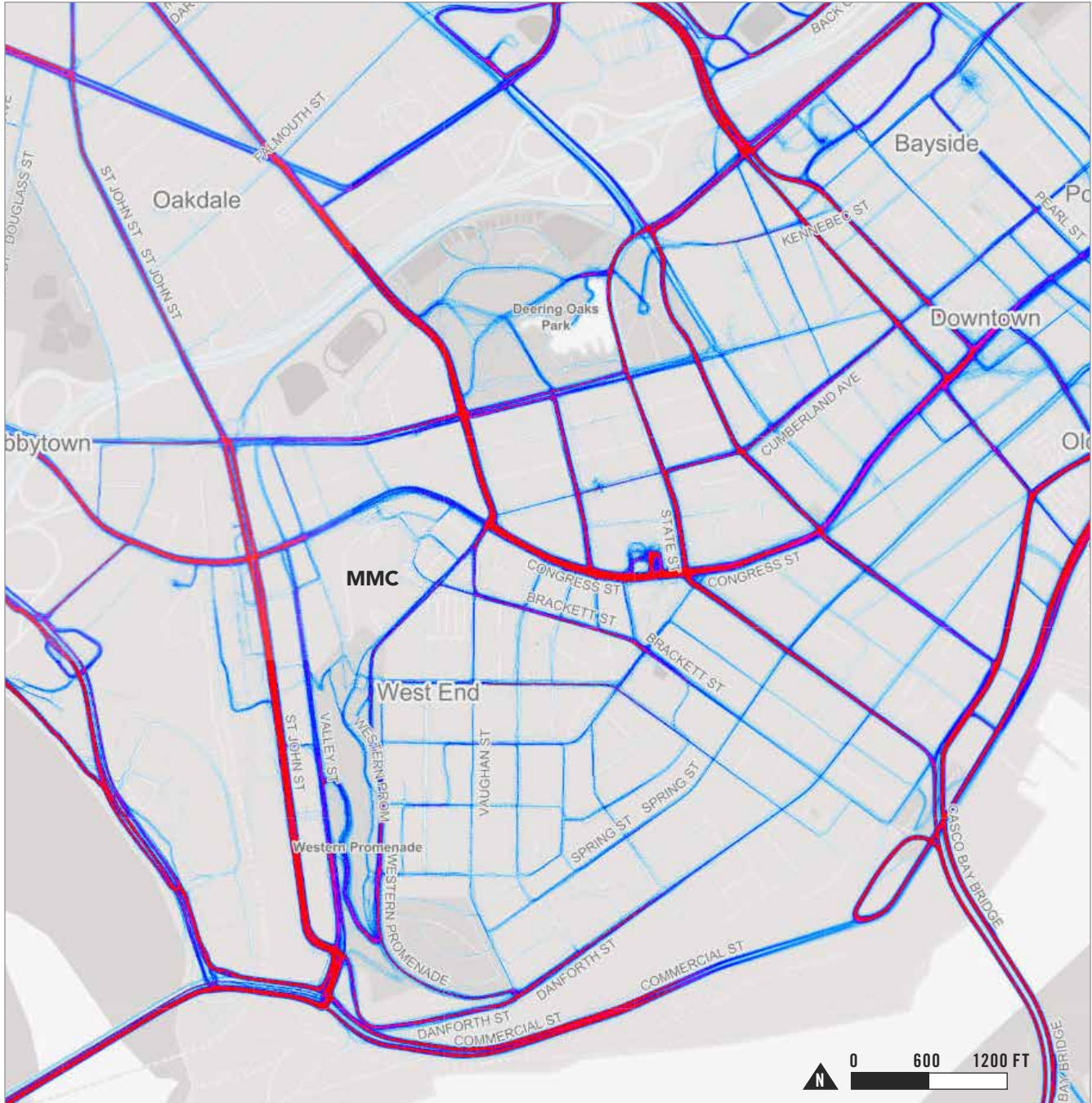


Fig.3.6 Portland Bikeway and Pedestrian Network (Source: City of Portland, 2014)

EXISTING FACILITIES

- Bicycle Lane
- Paved Shoulder
- Neighborhood Byway
- Shared Use Pathway
- Shared Lane, with Marking
- Shared Lane

PLANNED FACILITIES

- - - On Road Bikeway
- - - Neighborhood Byway
- - - Shared Use Pathway or Rail with Trail



BICYCLE ACCESS AND STORAGE

As shown in **Fig.3.5 on page 70**, bicycling is prevalent within the City of Portland, however, bike use at and around the MMC campus is generally lower than in other Portland locations. This could be a result of the severe grades in the Bramhall neighborhood, but also the lack of strong municipal bicycling infrastructure, including dedicated bike lanes, paths and sharrows.

MMC is committed to supporting bicycle access to the Bramhall campus by all users, including employees. In recent years, the hospital has invested in bicycle racks, showers, and lockers, and currently has the capacity to accommodate parking for up to 193 bicycles on campus (see **Fig.3.2 on page 58** for locations). MMC aims to continue support employees who bike to work as a part of its TDM plan (see "Supporting Bicycle Commutes" on page 79).

MMC is an advocate of the City of Portland's Bikeway Network Plan, which will provide bicycle infrastructure on campus adjacent streets with linkages to existing and planned shared use pathways (see **Fig.3.6 on page 71**).

Detailed design of each new development on campus will identify any necessary changes to bike infrastructure to better serve the needs of those arriving by bike.

PEDESTRIAN ACCESS AND CIRCULATION

Whether they arrive on campus by car, by bus or by bicycle, all campus users are pedestrians at some point in their journey to their MMC destination. Like other medical centers of its size, MMC provides elevated, covered, and temperature-controlled pedestrian walkways between its parking garages and key campus circulation corridors. This limits exposure to adverse weather conditions, facilitates wayfinding for patients / visitors, and minimizes on-street vehicle / pedestrian conflicts.

MMC also maintains its network of campus pathways and campus-adjacent public sidewalks to ensure safe pedestrian access to campus facilities (see **Fig.3.2 on page 58** for location of key pedestrian entrances).

MMC will complete a campus-wide ROW Plan at the time of its first site plan review that includes sidewalk materials to clarify the need for any variations from current city policies and how they would be integrated into the public realm. In order to improve slip resistance and ADA accessibility, MMC may request waivers from the city's sidewalk material policy under site plan review.

MMC aims to improve pedestrian access to campus with future building projects by orienting building entrances to public streets and providing active ground floor uses where possible. (See "Design Guidelines" on page 116 for details.). MMC will also work with the City and other stakeholders

including the St. John Valley Neighborhood Association to identify potential improvement that could be implemented to pedestrian routes between the proposed St John Garage (see **Fig.2.7 on page 44**) and the core campus.

FUTURE TRANSPORTATION PLANNING CONSIDERATIONS

MMC continues to solicit input from its neighbors to identify transportation-related issues and possible improvements that should receive additional consideration during the planning and design of future projects by MMC and the City. Key issues identified in this process to date include the following:

- Chadwick Street: A portion of Chadwick Street is one-way. The conversion to two-way could reduce the amount of traffic going further into the West-end neighborhood and help slow vehicular speeds to levels that are safer for pedestrians and bicyclists.
- Chadwick Street at West Street: Neighbors have observed low compliance with stop-signs and two-way travel on one-way streets.
- Vaughan Street at Bramhall Street: This is a difficult intersection geometry for pedestrians, cyclists and vehicles.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

MMC has an active Transportation Demand Management (TDM) program that was one of the first in the state of Maine when launched in 2008. The program aims to reduce MMC's impact on peninsular traffic by subsidizing and marketing of alternative commute options including walking, bicycling, public transit, and rideshare. Known as "Get on Board!," this voluntary program has grown each year through increased enrollment.

In 2017, MMC engaged VHB, a consulting firm with expertise in this area, to update and enhance its TDM program and to inform its long-term plans for parking, in particular.

This section provides a summary of VHB's analysis of existing employee commuter behavior, and outlines proposed updates to the "Get on Board!" program that will be implemented in the near- and long-term to further reduce single-occupant vehicle (SOV) commutes by employees.

EMPLOYEE COMMUTES: 2017 BASELINE

As part of its efforts to monitor and enhance the "Get on Board!" program, MMC recently administered a voluntary transportation survey with its employees. The survey showed that 9% of employees use alternatives to SOV commutes (see **Fig.3.7 on page 75**). Based on the expert knowledge and experience of VHB, the high percentage of employees driving to work alone and parking near campus is not unexpected given the nature of the services provided, the dispersed

geographic footprint of where MMC employees live, and the availability of viable transportation alternatives to driving. Detailed analysis of employee driving distance to work is illustrated in **Fig.3.8** and **Fig.3.9** on the following pages.

FUTURE TDM TARGETS

Based on a review of census data, employee travel origin and destination information, existing employee travel mode split, and transportation survey results, MMC believes it can further reduce the portion of employees driving alone to work, thus reducing trip making and resultant parking demands. An initial estimate is that an additional 1.5% of the daytime population could be shifted into alternative modes of accessing the campus. This represents approximately 65 fewer individuals driving alone to campus.

The reduction would be achieved through MMC's existing TDM initiatives, as well as new strategies that will be implemented over time. MMC will endeavor to increase its employees' overall use of alternative modes of travel beyond the target identified above through further enhancements or program expansions in the coming years and depending upon initiatives by the City, GPCOG, and others.

MMC's enhanced TDM Plan draws on national best practices and suggested examples from the City of Portland Planning Staff. City suggestions included evaluating the Downtown Parking Management

Fig.3.7 MMC Bramhall Campus Employees Commuting Mode Split (2017)

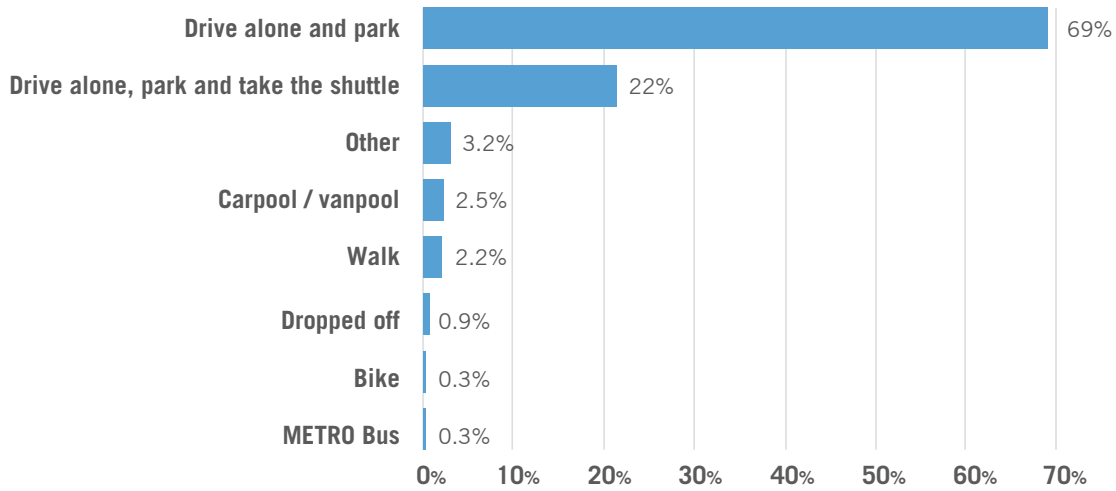


Fig.3.8 MMC Bramhall Campus Employees, Distance to Work by Type of Employee

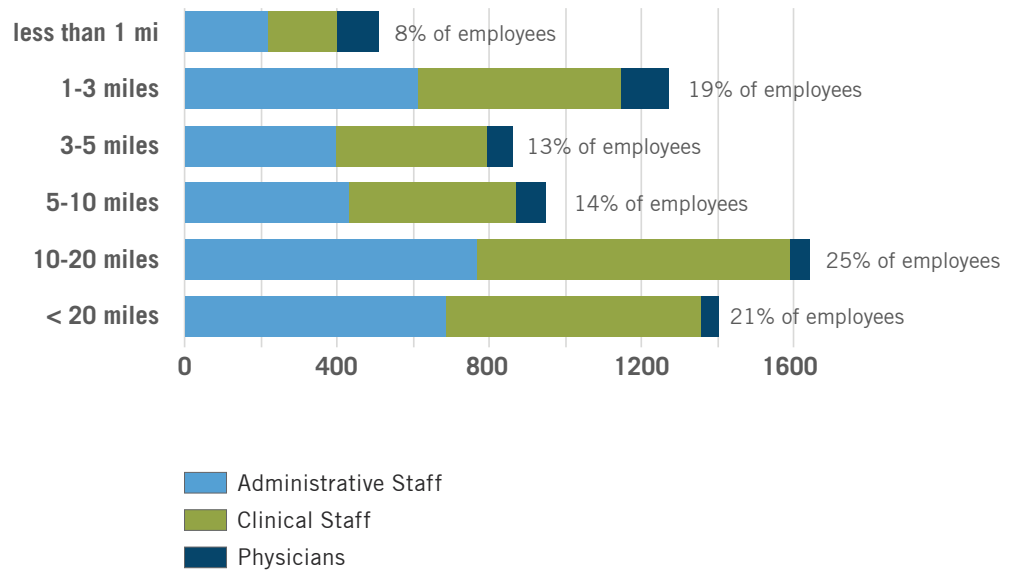
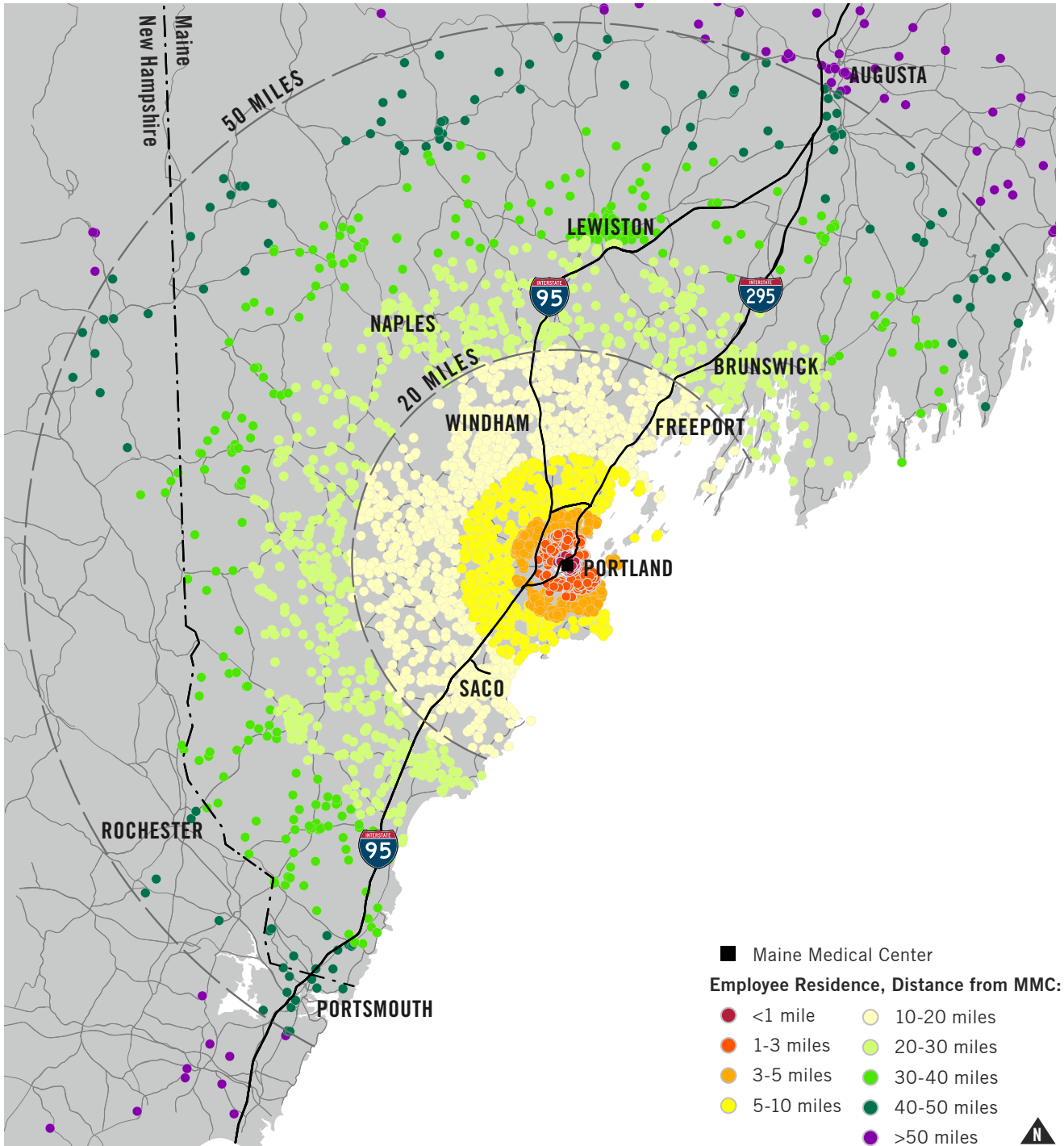


Fig.3.9 Map of MMC Bramhall Campus Employee Residences Illustrating Distance to Work and Travelsheds



Plan for Burlington, VT, an Institutional Parking Management Plan also for Burlington, VT, and a Transportation Demand Management Study for Downtown Syracuse, NY. Additionally, MMC also examined the commuting program instituted by Boston's Longwood Medical and Academic Area (LMA), known as CommuteWorks, and operated by MASCO, a consortium of hospitals, colleges and universities, and other related institutional uses. These programs were evaluated because of their efforts to manage SOV driving in a highly concentrated employment district.

Applicable Best Practices

- Collaboration among organizations in the area impacted
- Regular communication and education of alternative transportation benefits
- Pay for parking
- Complimentary support programs (i.e. guaranteed ride home, carpool)
- Regular monitoring of commute mode (i.e. surveys, automated data collection)

TDM PROGRAM COMPONENTS

Individual program elements and related incentives of MMC's TDM program are outlined below. These include continuation of existing initiatives, as well as the following new initiatives / enhancements that will be implemented starting in 2018:

- Data Collection
- "Get on Board!" Coordinator
- Increased Education of Employees about the "Get on Board!" Program
- Bi-Annual Transportation Survey
- Regional Connections Partnership
- Enhanced Transit Fare Discount / Partnership with METRO
- Enhanced Carpool/Vanpool Matching
- Active Transportation Incentives

MMC aims to achieve a 1.5 percent reduction in SOV commutes 5 years after the approval of the IDP. This target will be revised when a new baseline is established.

Data Collection

MMC will explore methods to improve data collection and implement a reasonable system to collect data on the transportation habits of employees and parking garage utilization.

"Get on Board!" Coordinator (New)

MMC will enlist the services of a "Get on Board!" Coordinator responsible for the implementation, operation and continuing sustainability of MMC's TDM. This individual will continually monitor the

program, its operations and future opportunities to reduce vehicle dependency by staff at MMC. The Coordinator will also be responsible for data collection and TDM updates as required.

Increased Education of Employees about the "Get on Board!" Program (New)

MMC will be enhancing the "Get on Board!" promotion and education process by periodically educating existing employees of the options and benefits available through the "Get on Board!" program. Additionally, newsletters will be distributed highlighting the environmental, health and other benefits of TDM.

Bi-Annual Transportation Survey (New)

MMC will conduct a Transportation Survey of its employees every 2 years to collect data about commuting mode split, barriers to TDM use and marketing effectiveness. Information from this survey will be included in the TDM plan updates.

Regional Connections Partnership (New)

MMC will seek to form partnerships with other major employers in the region, including the City of Portland, to foster a holistic approach to transportation demand management. The partnerships would enable the exchange of TDM-related information and experiences between institutions, and it would foster a community that is focused on promoting alternative transportation in the City of Portland.

Supporting Mass Transit Commutes (Enhanced)

MMC employees can purchase discounted bus tickets and Shuttle-Bus Zoom tickets conveniently in the cafeteria. MMC buys the tickets at the regular price and offers them to employees at the reduced prices listed in **Table 3.4** below. This is a clear demonstration of MMC's commitment to making "Get on Board!" work.

Table 3.4 MMC Current Transit Incentives

	MMC COST	EMPLOYEE COST
METRO (10 RIDES)	\$13.50	\$8
S. PORTLAND (10 RIDES)	\$13.50	\$8
ZOOM (10 RIDES)	\$39	\$29.60
ZOOM MONTHLY	\$100	\$84.50
ZOOM QUARTERLY	\$260	\$197.50

MMC will fully subsidize the cost of METRO bus tickets for employees who wish to use the bus for the foreseeable future so long as the cost of METRO bus tickets remains as illustrated in **Table 3.4**. If METRO bus ticket costs change, then MMC will evaluate utilization and work with METRO to find the best solution to support employees who wish to use the METRO. Subsidizing METRO tickets would provide employees with an additional financial incentive to use the transit system serving the MMC district.

METRO's existing routes and schedules cannot meet all of MMC's employees' transportation needs, however. Although the MMC campus is well served by bus transit (See **Fig.3.4 on page 68**), the limited hours of operation and the long headways

between runs do not provide a viable alternative to the car even for those employees who can walk to a bus stop from their residence. (See **Table 3.3 on page 69**).

MMC intends to explore a partnership with the Greater Portland Transit District (METRO) to identify strategies for increasing MMC ridership, such as service updates and/or pricing agreements. The formation of a partnership could be mutually beneficial, by providing METRO with feedback for increasing ridership while maximizing the usefulness of the transit system for MMC employees. As MMC formalizes its ties to other local institutions through a regional partnership, its collaboration with METRO could also extend to other employers.

Supporting Employee Carpools (Enhanced)

"Get on Board!'s" most successful initiative to date has been its carpooling program. Most of these connections are ad-hoc. MMC will promote increase participation by actively matching potential riders. Additionally, while Go Maine is the primary administrator of vanpools in the state, MMC will work to proactively identify and assist with the formation of vanpools.

The employee "Get on Board!" portal is linked to the GoMAINE Commuter Connections website, which is an alternative commuting program operated by MDOT. GoMAINE provides commuters with additional commuting resources and benefits that supplement those provided by MMC. These benefits

include a carpool ride-matching program and a rewards program for participants.

Supporting Bicycle Commutes (Enhanced)

The MMC campus is located in close proximity to popular bicycle corridors, including St John and Congress Sts which connect riders to destinations across the City of Portland (see **Fig.3.5 on page 70**). MMC has worked diligently to support bicycle commuters. In 2008, MMC installed five strategically-located bike racks and ten bike lockers on their Bramhall Campus. Three new bicycle racks were added in the vicinity of the Main entrance and in the South Lot in 2016, bringing total storage capacity to 193 bicycles across campus (see **Fig.3.2 on page 58** for location of bicycle racks on campus). Bicycle commuters also have access to a shared toolshed with basic tools.

MMC will undertake an internal marketing program which offers fun and useful prizes for those participating in alternative modes of transportation. Making alternative transportation fun and a community-wide effort is likely to increase participation by some who might not otherwise engage in the process.

Pay for Parking

MMC will charge its employees no less than \$3 per paycheck to utilize MMC parking. MMC employees are paid bi-weekly. MMC will evaluate employee parking fees in the mid-term.

Guaranteed Ride Home (GRH) Program

For those employees who regularly use alternative modes of transportation to and from its Bramhall Campus, MMC will guarantee a ride home in emergency situations.

UCar

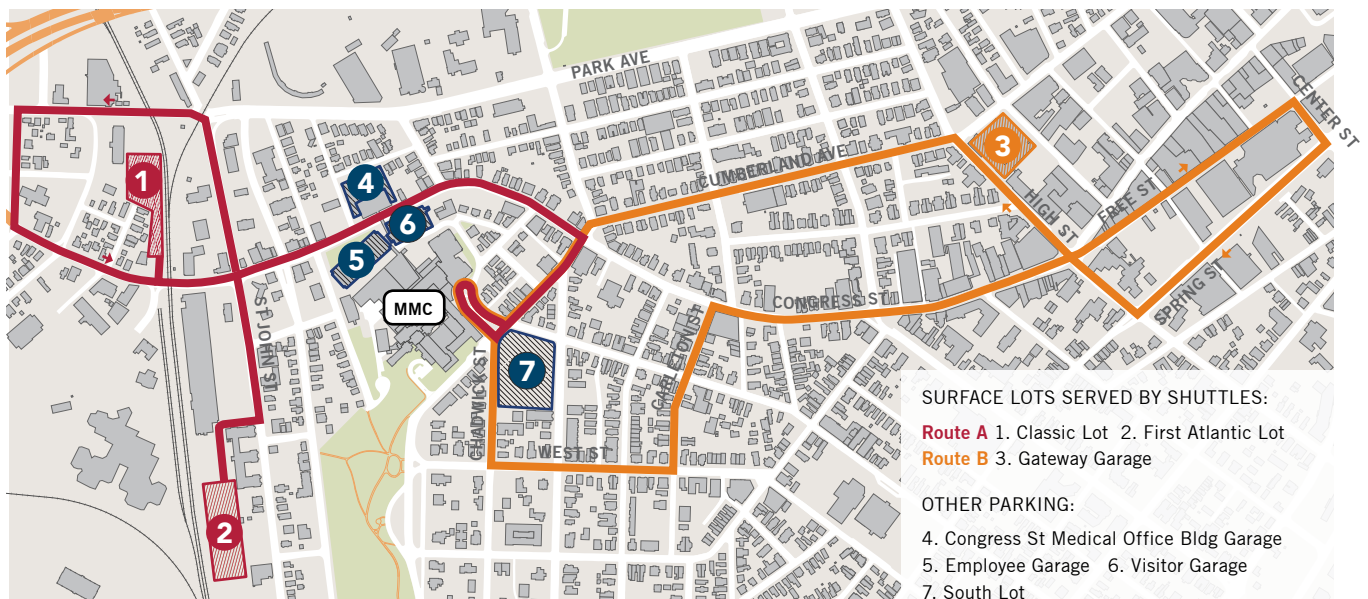
Working with UHaul and the City’s Parking Department, MMC will continue to monitor the use of the UCar presently located in its Congress St parking garage. In the event an additional car is warranted, MMC will work with its partners in finding a suitable location on the main campus for the storage and use of the UCar.

MMC Employee Shuttles: Current Service

The MMC employee shuttle operates Monday-Friday from 6am to 11pm. The number of shuttles running to off-site parking locations at any given time varies from 1-5 shuttles depending on traffic volume. These off-site lots fill to capacity on a daily basis. The employee shuttle service has three distinct routes and schedules:

- A. Service to and from the off-site 1st Atlantic and Classic parking lots runs from Monday through Friday from 6am to 11pm, in a continuous loop. The 1st Atlantic parking lot (222 St John St) is utilized first in the mornings. Once it nears capacity, service shifts to the Classic parking lot (993 Congress St). Return trips in the evenings service both lots.

Fig.3.10 Map of MMC Shuttle Routes A & B.



B. The Gateway shuttle moves employees between the MMC Bramhall campus, the Gateway office building / garage and the MaineHealth home office at 110 Free St. The shuttle leaves every 20 minutes from the south entrance Monday through Friday from 6am to 4pm. Transportation is provided on an "On Call" basis between 4pm and 11pm. This shuttle also provides a limited courtesy transportation service to patient families staying at the Ronald McDonald House (250 Brackett St.).

C. A courtesy shuttle runs between Brighton Medical Center (335 Brighton Ave) and MMC every 20 minutes from 6am to 4pm.

The shuttles provide a predictable alternative to employees commuting between the three sites while reducing vehicular traffic in and around campus.

MMC has instituted a shuttle service for contractors from the Classic Parking Lot (993 Congress St) to the hospital to reduce traffic and parking impact on the campus and surrounding neighborhoods. In 2015, MMC added a 20-space contractor lot on Forest St. Only essential contractor vehicles are permitted to park on campus: contractor parking passes are distributed by the Engineering Department on a case-by-case basis.

MMC Employee Shuttles: Future Routes

Once the St John St garage is complete and the majority of MMC employee parking is consolidated to that location, a new shuttle route will be established that reduces the amount of traffic around City streets and provides a reliable method of transportation for MMC employees. Future shuttle routes will be determined during the site plan review process.

ENVIRONMENTAL AND INFRASTRUCTURE PLAN

Sustainable and resilient infrastructure is key to ensure safe and efficient operations of healthcare facilities in the 21st century. Maine Medical Center is seeking to advance its good stewardship of environmental and infrastructure resources through its Institutional Development Plan.



NATURAL RESOURCE PROTECTION

The Maine Medical Center Bramhall campus is located at a high point in the west end of the Portland peninsula. There are several locations where natural resources are significant:

- The Western Promenade, a culturally significant public park that is listed in the National Registry of Historic Places (NRHP'89, see **Fig.4.1**);
- MMC-owned landscape along Bramhall St abutting the Western Promenade and serving as a foreground to the Maine General Building and original hospital structure;
- MMC, located in an urban setting, maintains small landscaped areas that provide visual respite from surrounding hard scape. These areas are well maintained, flowers watered and mulched and trees fertilized in order to preserve the pleasing aesthetics important to its neighbors, employees and patients; and,
- MMC-owned natural area along Gilman St. This steeply sloping zone contains natural vegetation consisting primarily of mature evergreen tree growth which serves as a natural buffer between the hospital and residences on Gilman St.

The Western Promenade, in particular, is a treasured resource for the public, including employees, patients and visitors to the MMC Bramhall Campus. It is a site from which to take in

views of the countryside and the White Mountains. The Master Facility Plan utilizes vertical expansion and/or previously developed sites to minimize impact on natural resources and maintain existing campus open spaces. The plan does not encroach upon or negatively impact any of the natural resources listed above.

Fig.4.2 on page 85 illustrates the location of these natural resources in relation to the proposed short- and long-term projects.

Fig.4.1 MMC IOZ: Relationship to the Western Promenade



Fig.4.2 MMC Environmental Protection and Operations Plan



* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

STORMWATER MANAGEMENT

The MMC Bramhall campus is located at a high point in the west end of the Portland peninsula. From the high point of the property along Bramhall St, runoff from the site drains west, north and east entering the to the City of Portland’s separated storm drain system and combined sewer system. The campus terrain and location of high slopes that contribute to stormwater flows is illustrated on **Fig.4.3 on page 86**.

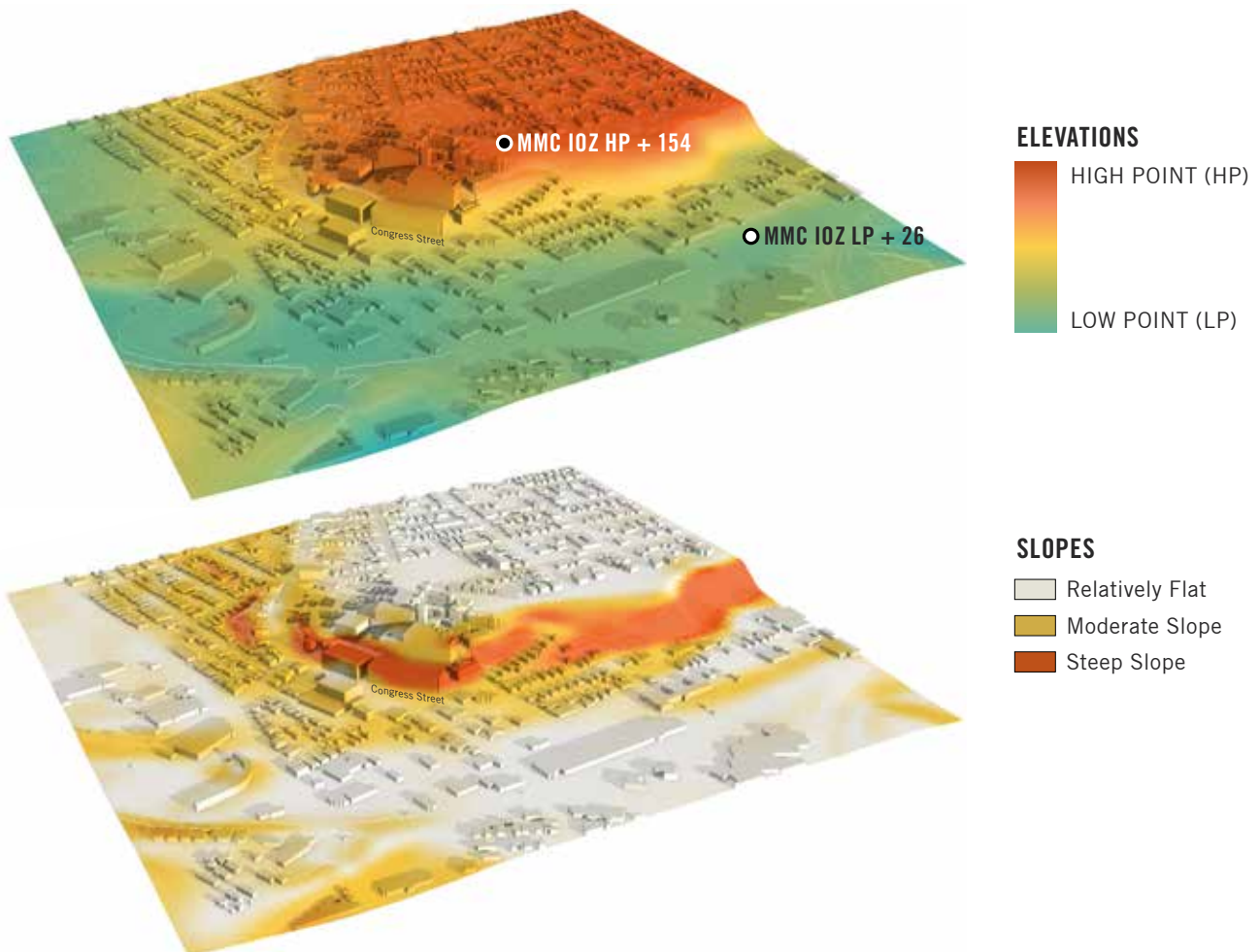
FEMA Floodplains

The campus is not located in a FEMA-designated flood zone. The 100-year flood zone boundary is located at the western edge of the Pan Am rail line and consists of flood-prone flats along the Fore River.

EXISTING STORMWATER INFRASTRUCTURE

In general, the campus redevelopment over the last 15 years has collected runoff from parking lots and new rooftops into a separated storm drainage

Fig.4.3 Diagrams Illustrating Elevation and Location of Steep Slopes around MMC Campus
(See **Fig.5.5 on page 106** for a map of existing elevations within the MMC IOZ boundary).



system, including storm drains in the public right of way. Where feasible, the on-site separated drainage system has been connected to a municipal separated storm drain. This includes the storm drains in A St constructed by the City in 2001 and Gilman St constructed by MMC in 2005.

2004 Improvements

The campus' stormwater conditions were most recently evaluated in a stormwater management report prepared by Sebago Technics, Inc. in 2004 as part of the Planning Board's review of the Bramhall campus expansion project, which included the construction of the Women and Infants Center, Emergency Department Expansion, Congress St Parking Garage and the Central Utility Plant. To meet stormwater treatment requirements for the expansion, MMC installed two Downstream Defender Stormwater treatment units to treat runoff from impervious areas on the site. The redevelopment separated and redirected stormwater runoff from approximately 6.3 acres of existing development from the combined sewers in Crescent St, Ellsworth St, and Congress St to the separated storm drain in A St. A 6' diameter unit was installed in the Congress St Parking Garage and a 10' diameter unit was installed in Gilman St.

Discharges into the City Combined Sewers

Other locations abutting the campus including Congress, Wescott, Charles, Bramhall, and Bracket Sts are only served by the City's combined sewers. At these locations, MMC's recent drainage construction terminates in a separated storm drain

manholes connected to adjacent City combined sewer manholes to provide points of connections for future municipal separated storm drains.

Detailed information on MMC's stormwater discharges into the City's combined sewer and separated storm water infrastructure is outlined on **Fig.4.4 on page 88.**

FUTURE STORMWATER FLOWS

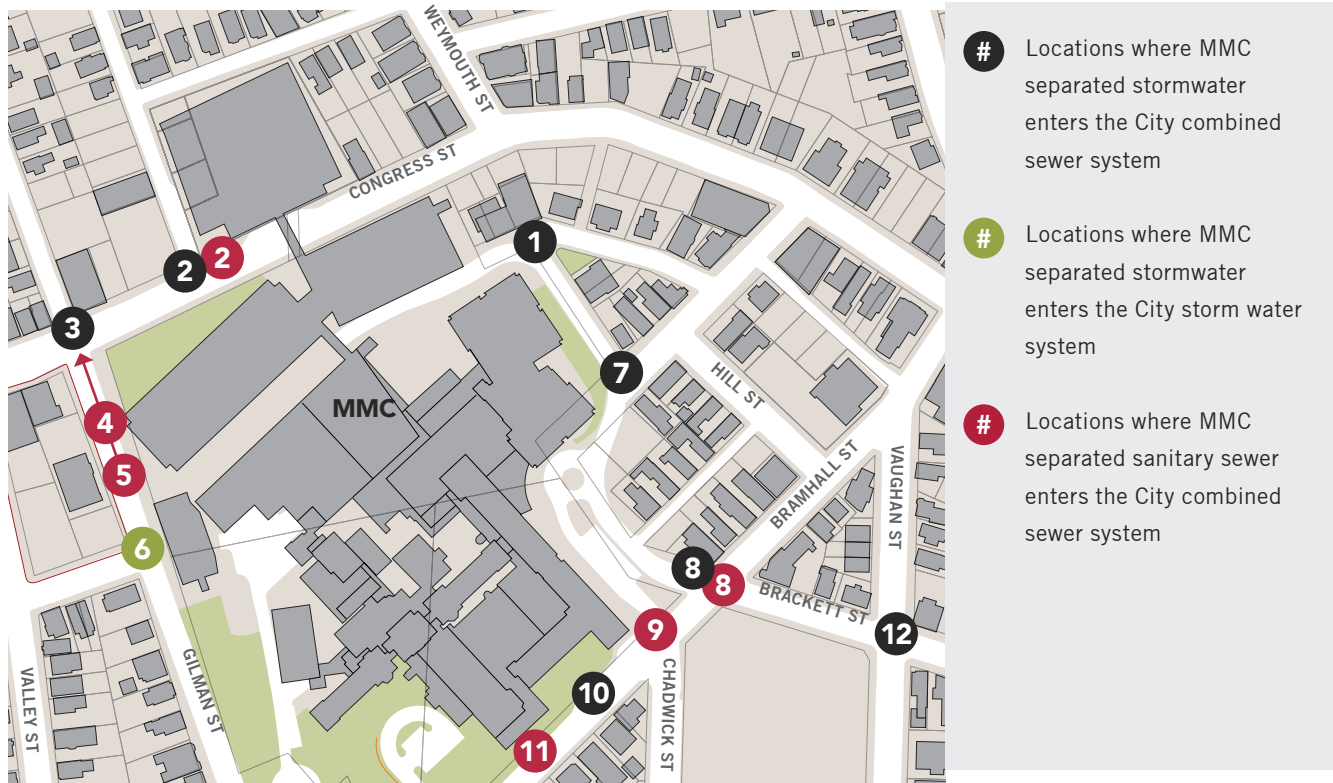
Any development or redevelopment of sites by MMC will be required to meet the City's stormwater management ordinance requirements and mitigate any increases in discharges to the extent practicable.

Projected Impacts of Proposed Development

A high level assessment of short- and long-term projects identified as part of MMC's Master Facility Plan shows no significant change to the amount of impervious surface or peak rate of run-off at the proposed project sites, as outlined below. A detailed discussion about the impacts of any future development will be part of site plan review.

- Proposed vertical additions to existing East Tower and Visitor Garage will not change the amount of impervious surface.
- Replacement of the Employee Garage with the proposed Congress St Development is not anticipated to increase impervious surfaces. The current design of the project site redevelopment includes an extensive green roof component and proposes

Fig.4.4 Existing Sewer Connection Points



LOC.	MMC STORM WATER FLOWS	MMC SANITARY FLOWS
1	Runoff from the campus and storm drains constructed by MMC in Wescott St enters a combined sewer man-hole at the intersection of Wescott St and Crescent St. The outfall of this system a 12" combined sewer that drains in a westerly direction along Crescent St, eventually draining to Park Ave via sewers in Ellsworth St, Congress St and Weymouth St.	N/A.
2 2	Separated runoff from the MMC parking garage enters the municipal combined sewer at the intersection of Congress St and Forest St. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains north in Forest St to Park Ave.	Sanitary sewer outfalls from the MMC parking garages enter the municipal combined sewer at the intersection of Congress and Forest St. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains north in Forest St to Park Ave. Areas tributary to this system include the Emergency Department, Women and Infants Center and Richards Wing.
3	Runoff from areas of the campus along Congress and Gilman St enter catch basins connected to the City's combined sewer system at the intersection of Gilman and Congress St. From this point the combined sewer drains north in Gilman St to Park Ave. Runoff in the roadway that bypasses the catch basins at the intersection runs west along Congress to St John St.	Sanitary sewer flows from #4 and #5 enter the City combined sewer at this location.

LOC.	MMC STORM WATER FLOWS	MMC SANITARY FLOWS
4	N/A.	The sanitary sewer serving the LL Bean Building, Annex B / Maine General Bldg, and the Engineering Services Building enters the City's 12" concrete sewer in Gilman St. From this point the sewer drains north in Gilman St to Congress St (#3) and continues to Park Ave.
5	N/A.	The sewer service from the Central Utility Building enters the 12" concrete City sewer in Gilman St, a short distance above Location 4.
6	Runoff at the intersection of Gilman St and A St at the upstream end of a separated storm drainage system constructed by the City of Portland in 2001 as part of the St John St sewer separation project. The storm drain was extended along A St, from its intersection with St John St to a drain manhole in Gilman St opposite the MMC Central Utility Plant. This storm drain was extended to the hospital property specifically for the purpose of providing a point of connection for separated stormwater runoff from the hospital. In 2005 MMC constructed drainage on campus to collect runoff from areas of the site including the existing emergency room parking area, LL. Bean Wing, and service areas abutting the Central Utility Plant to the A St storm drain. This project also extended the separated storm drain in Gilman St to the south, separating runoff in Gilman St and the Dana Center from the City's combined sewers.	N/A.
7	Runoff at the intersection of Ellsworth St and Wescott St. Separated storm drains constructed by MMC in 2005 connect to a combined sewer system manholes in Ellsworth St. The combined sewer drains in an east in Ellsworth St towards to Congress St.	N/A.
8 8	Separated storm drainage from the MMC parking lot enters the combined sewer in Charles St at its intersection with Bramhall St.	Sanitary sewer manhole in the intersection of Bramhall and Brackett Sts where sewer services from Pavilions A and C connect to the City sewer. The outfall of the manhole at this location is a 15" sewer that drains to the east in Bramhall St.
9	Runoff from small areas of the site along Bramhall St enters the combined sewer system at Location 8.	Sewer service from the south end of Pavilion A enters a City sewer manhole at the intersection of Bramhall and Chadwick St. From this location, the sewer continues east to Location 8.
10	Small areas along Bramhall St enter catch basins in the city right-of-way	N/A.
11	N/A.	Sewer manhole in Bramhall St where a sewer service from the Dana Center enters the City sewer in Bramhall St. From this location, the sewer continues east to Location 9.
12	Runoff at the intersection of Brackett St and Vaughan St where separated MMC storm drains in the Brackett St parking lot connects to the combined sewer draining southeast in Bracket St.	N/A.

removals of existing impervious area. The net impact of this design is expected to result in no increase in the peak rates of runoff from the site. It is expected that the primary post-development stormwater connection will be to the Forest St combined sewer at the intersection of Congress St and Forest Sts..

- 222 St John St is served by a separated stormwater drainage system that travels west under the railroad tracks and past the Cumberland County jail site and Fore River Parkway to discharge to the Fore River. The proposed new parking structure on this property is not anticipated to significantly change the amount of impervious surface or peak rate of run-off.

SANITARY FLOWS INTO CITY COMBINED SEWERS

Issues in areas of the City's stormwater, sewer drainage, and fire hydrant systems in the vicinity of MMC's campus have been identified by City officials but have not been quantified. MMC understands that the site plan review process for individual projects may include measures that minimize new impacts to the combined sewer system. The MMC campus discharges sanitary flows into the City of Portland's combined sewer system at approximately seven locations, as illustrated in **Fig.4.4 on page 88**. This information is provided to the best of MMC's knowledge after researching its own records and those of the City of Portland. Due to the age of the public sewer system and MMC's buildings, record plans of the existing sewer

systems may be incomplete and additional currently unidentified connections may exist. We are unaware of capacity issues in the City's existing system at the connection points from the campus to the City sewer system located in the public right of way. Drainage studies completed for the 2004 Bramhall campus expansion and approved through the site plan process did not identify deficiencies at the connection points to the City system.

MMC anticipates increased use of city combined sewers for sanitary flows associated with its short- and long-term projects. The increased sewer flow loads and exact connection locations will be determined during the Site Plan review process as required by the City of Portland:

- The East Tower expansion is anticipated to increase sanitary flows in the combined sewer located at the intersection of Congress and Forest Sts, which connects to the Forest St combined sewer.
- The Congress St Development is anticipated to increase sanitary flows in the combined sewer located at the intersection of Congress and Forest Sts, which connects to the Forest St combined sewer. The Congress St Development may also include a sewer connection that increases sanitary flows into the combined sewer located at the intersection of Congress and Gilman Sts that ultimately discharges to the Gilman St combined sewer.

ENERGY CONSERVATION

CURRENT CONSUMPTION

Because MMC, of necessity, is such a large consumer of energy, it utilizes the services of an energy procurement broker, Competitive Energy Services, to provide it with strategic energy consulting services and management of energy procurement activities for electricity, natural gas, and oil in order to maximize efficiency and to ensure MMC achieves the most competitive pricing. MMC purchases its energy through a competitive bid-based energy procurement process.

In calendar year 2016, MMC consumed:

- 411 gallons of oil,
- 1,633,686 CCF of natural gas, and,
- 35,375,765 Kw-Hr of electricity.

CONSERVATION EFFORTS

Central Utility Plant (2008)

In 2008, MMC's 22 Bramhall St campus went live with its upgraded and centralized utility plant. The Central Utility Plant (CUP) was designed to provide better management of and more efficient results for energy consumption by the hospital. The plant produces steam, chilled water, and back-up power for the Bramhall campus. The peak tonnage of the plant is currently close to 2,400 tons per hour of chilled water.

Since 2008, MMC has experienced dramatic energy consumption decreases directly resulting from the state of the art utility plant. The CUP controls both electrical and gas utilization, and heating and

chilling functionality, and will service the short-term modernization project under development at the Bramhall campus, with a minor upgrade to the existing systems. The CUP contains state-of-the-art dual natural gas /oil system allowing for switching between oil and gas depending upon price and availability.

Infrastructure Improvements

In addition to its conservation methods in the electric, oil and gas arena, MMC has also undertaken investment in infrastructure upgrades at its 22 Bramhall Campus to reduce building air changes and temperature set-points allowing for the monitoring and control of humidity and temperature during high demand use times. Upgrades in sequencing and timing of set points have achieved efficiencies of HVAC run times and energy demand.

Further, MMC has been investing in lighting and plumbing features that allow for reduced energy consumption. LED lights have been installed in its garages and in the public corridor within the Bean Building. Low flow plumbing fixtures with aerators are installed when replacements or renovations are required. These fixtures lower overall water consumption at the hospital.

Future MMC projects are expected to integrate with ongoing major utility initiatives impacting the area including Unitil's Natural Gas SURE project and the City's LED street light conversion program.

Table 5.1 Projected Electricity Demand

		Projected Net Energy Demand	Potential On-Site Energy Production (Rooftop PV)
East Tower Vertical Expansion	Utilizing new systems for efficiency	300 KW	--
Visitor Garage Vertical Expansion	Utilizing existing systems	350 KW	150 KW
Congress Street Development	Net demand with the deletion of the existing garage currently on site	1,700 KW	
St John St Garage	Stand-alone project not connected to core campus primary metered system	230 KW	500 KW
Central Utility Plant Expansion	Additional summer cooling demand	1,800 KW	
TOTAL ENERGY DEMAND		4,380 KW	650 KW

Green Buildings

The historic Maine General Hospital incorporated natural light and ventilation as an important part of the healing process. To continue this legacy, new campus buildings will take advantage of natural light, heat, and ventilation to improve building performance while also contributing positively to the healing qualities of patient and family spaces. Specific designs will aim to lower Energy Use Intensity (EUI) beyond the traditional code minimum baseline. Use of industry standards such as LEED will serve as a model for evaluating the sustainability of future MMC buildings.

PROJECTED ENERGY DEMANDS

Each project in the Master Facility Plan has specific needs and vary in their impacts. The proposed projects combined are anticipated to generate 5,400 KW of additional electricity demand (see **Table 5.1** above for details). MMC is currently working with Central Maine Power to identify capacity for the projected electricity loads.

The steam loads are met by MMC's CUP and will not impact city infrastructure. The CUP has the capacity needed to service MMC's short-term growth needs. The gas infrastructure has capacity to handle any increases to the current steam load.

OPERATIONAL SUSTAINABILITY

HAZARDOUS WASTE MANAGEMENT

MMC has a Hazardous Materials and Waste Plan supported by policies for the handling and disposal of hazardous waste, universal hazardous waste and biomedical waste.

Biomedical and Hazardous Waste

Biomedical waste sharps, biomedical waste, pathological waste (tissues, etc), and hazardous pharmaceutical and other chemical waste are collected by MMC Environmental Services or contractors, and stored at secure locations across campus prior to pick up, transfer, and ultimate disposal by contractors. DEA controlled substances are wasted at the point of generation (e.g. medication rooms), solidified, and collected by MMC Environmental Services at a secure holding room for pick-up, transfer and ultimate disposal by contracted vendor. All hazardous materials leave the campus through the loading docks (see **Fig.4.2**).

MMC's short-term projects are not expected to create significant increases waste volumes. No changes are currently planned to hazardous materials storage and transfer locations on campus.

Grease Discharge

MMC will be installing a grease trap system capable of separating grease from waste water as part of its short-term projects.

Soiled Linen

MMC has its own Linen Services department that is responsible for overseeing the processing of laundry for all of MMC and Maine Medical Partners (MPP)

locations. The plant is located in Westbrook, and the linen is transported between these locations by MMC's Materials Management team.

SUSTAINABLE OPERATIONS

MMC expects to continue, and where possible, expand on the following sustainable operation strategies as part of its long-term plan.

Campus Recycling

MMC separates paper and cardboard out of the waste stream through on-campus recycling. MMC Kitchen and Café provide recycling for can and bottle returnables, and separate compos items from the waste stream. MMC has also switched to reusable needle boxes to reduce plastic waste. Expired medical equipment and devices are reprocessed by contractors.

Landscaping

MMC contracts with an outside landscaping company. In renewing its contract, MMC is requiring the use of organic pesticides and fertilizers for all planting and green space on campus.

Snow Removal

MMC contracts with an outside snow removal company. The environment requires the use of melting agents, but MMC has taken steps to minimize its use by installing heated sidewalks at the front entrance and South lot entrance as well as the Emergency Department entrance. MMC will continue to use replace calcium chloride instead of salt, when possible, to reduce environmental impact of snow removal.

NOISE IMPACT

MMC's Master Facility Plan aims to minimize noise and disturbance both for the benefit of its neighbors and its patients. Key to this is relocating the main campus entrance to Congress St. This will limit traffic and associated noise from moving up onto the hill. The relocation of the helipad will maintain current flight paths, which were designed to minimize neighborhood noise impacts by following the recommended approach to the hospital over the Congress St corridor as opposed to over dense residential areas. MMC will document the noise complaints it receives electronically and at its dedicated noise complaint phoneline at 207-662-6699, and review all such complaints with the neighborhood council as they arise.

MITIGATING IMPACT OF HELIPAD OPERATIONS

MMC's helipad is currently located on top of the Employee Garage, which is slated for deconstruction in the short-term per MMC's Master Facility Plan (MFP). The MFP calls for a new helipad to be built on top of the East Tower following its planned vertical expansion (see "Short-Term Projects" on page 44).

MMC is in the process of identifying preferred flight routes for the new helipad, to be approved by the City of Portland, that will minimize noise impact of helicopter flights on surrounding residential areas. Initially, such preferred flight routes shall be proposed to the Federal Aviation Administration (FAA) as shown on the flight map (see **Fig.4.5 on page 95**). At the initiative of either the City or MMC, the map of preferred flight routes may be amended from time to time by agreement between MMC and the City. MMC will notify all flight providers likely to use the Helicopter Landing Pad of such preferred routes, and shall take the following measures to ensure that such preferred routes are utilized whenever weather conditions, safety considerations and the best interests of the patient being transported permit, with the expectation that this will be the usual case.

MMC will instruct all providers which regularly use the Helicopter Landing Pad that pilots must file an exception report with the Air Medical Provider Administration of Lifeflight of Maine or its

Fig.4.5 Proposed Flight Routes for the new MMC Helipad



NOTE: Path #3 is new and will only be used under high wind conditions if required by the Federal Aviation Administration.

successor entity for operations modified for safety considerations or at the direct request of Approach Control at the Portland International Jetport. Logs of these exception reports will be made available to MMC and to the City upon request but no more frequently than annually.

When and if the Portland Jetport has the capacity to maintain and preserve data which specifically identifies flight routes actually taken by aircraft utilizing the Helicopter Landing Pad, the City shall consult such data to review compliance with this paragraph, and MMC, upon request of the City, shall be responsible for the cost of translating this data into usable form but not for the costs of the flight monitoring.

MMC will continue to engage providers of helicopter emergency medical transport who are accredited by the Commission on Accreditation of Medical Transport Systems (CAMTS) or its successor agency (unless special circumstances warrant a non-accredited provider, such as the Air National Guard, US Coast Guard and others), and who operate in compliance with the "Fly Neighborly Guide," third edition (and any subsequent revisions) prepared by the Helicopter Association International.

Helicopter landings on the Helipad shall be used for emergency patient care only, and on the rare occasion for emergency management training by federal or state management agencies or US military or government aircraft.

Compliance with Helistop Overlay Zone Regulations

Because the proposed helipad location is on the roof of an existing structure, the landing pad shall not be required to meet the setback requirements of Section 14-327(3), or the fencing requirements of Section 14-327(4) of the Helistop Overlay Zone.

MMC will continue to honor the following exception to the Helistop Overlay Zone included in the 2005 Conditional Rezoning Agreement (Order 172-04/05):

1. Equipment. In generating any specifications in connection with the negotiation of any contract or agreement with any provider of emergency medical transport by helicopter, MMC will specify that helicopters utilizing the Helicopter Landing Pad (with the exception of U.S. military or government aircraft) are relatively new turbine powered aircraft meeting requirements under ICAO Annex 16 Chapter 8 for in-flight noise levels and complying with FAA airworthiness standards, 14 CFR part 36.11 and 14 CFR 21 Sub-part D, or any amended or successor requirements or standards.

MMC shall conduct a noise study as part of the site plan process if any changes to the helipad are being proposed, and work to mitigate any potential noise impacts.

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DESIGN

Maine Medical Center aims to continue its tradition of design excellence with its new campus projects. Future buildings will be designed to improve care delivery while also providing a new gateway to Portland on Congress St.



DESIGN DRIVERS

The campus transformation of Maine Medical Center (MMC) draws its inspiration from its site, history, programmatic needs and most importantly the desire to create a sense of place. Specifically, the Hospital will reflect its location within Portland and of Maine. Within this framework, the Hospital aims to preserve the historic character of the existing campus yet provide the opportunity for new identities to develop that represent the modern delivery of healthcare and the future of MMC.

Fig.5.1 MMC Campus: Key Design Drivers

COMMUNITY

Positive Patient,
Family & Community
Experience



ADAPTABILITY

Spatial and
Programmatic
Flexibility



HEALING

Spaces that
Promote Healing



A NEW GATEWAY ON CONGRESS STREET

MMC key design drivers and interventions envisioned for the MMC balance the clinical needs of the hospital with the campus' place within the City of Portland. Included is a primary effort to improve the built environment of MMC's campus relationship with its urban context. This is achieved by focusing the new entrance towards Congress St to create an improved presence on the urban edge of the campus. This key intervention improves the visitor and patient experience from arrival to the City all the way to entering MMC buildings themselves. Providing a new entry on Congress St connects a campus entry directly to the existing and expanded visitor parking garage, simplifying the drop-off and parking sequence. This move creates a clear arrival sequence from drop-off, to parking, to movement through the MMC campus.

AN EFFICIENT, WELL-ORGANIZED CAMPUS

The inclusion of a new entry coupled with clear primary circulation along the ground level connects major interior programmatic functions with the site, further reinforcing the wayfinding and activating the building interior and exterior. Engaging with Congress St with a sensitivity to human scale and experience will be the focus of the transition between exterior to interior including transitions from urban to natural environments. This approach extends to vertical connections, both physical and visual, to mitigate the large grade changes that exist on campus and with the surrounding sites. These interventions will provide a positive patient

Fig.5.2 Artists' rendering of new Congress Street entrance, part of the proposed Congress Street Development (Note: Façade design is subject to change during detailed design.)



and visitor experience as well as improve the surrounding neighborhood.

DESIGN THAT SUPPORTS HEALING

The creation of healing environments is an essential element to the design within the IOZ boundary. This will be achieved through the incorporation of access to and views of nature and natural daylight, which are proven to improve positive patient outcomes within a healthcare environment. Proper location and use of glass and transparency provides connections to the exterior to improve patient, visitor and staff experience but also to further reinforce wayfinding, and activate and energize the streetscape.

A SUSTAINABLE AND RESILIENT CAMPUS

Hospitals are vital partners within the communities they serve. Due to this relationship, design modifications will further improve MMC's status as a resilient campus that provides both a responsive exterior environment and healing indoor environment. Buildings take advantage of natural light and air, coupled with the use highly efficient mechanical systems. These drivers will reduce the energy necessary to operate the buildings, further increasing resilience in the face of unanticipated events.

CONTEXTUAL LANDSCAPE FRAMEWORK

The long-term landscape framework for the MMC campus draws its inspiration from the landscape typologies of coastal Maine reconciled to the site's rich historical and urban context. The campus commands a high promontory adjacent to the historic Western Promenade, and extends down the hill to Portland's bustling main street, Congress. The landscape design will respond to this context with elements that provide transitions between the historic and pastoral to contemporary and urban.

The landscape design at the southern end of the campus is conceived as a visual extension of the Western Promenade's historic landscape design, while the new entrance on Congress St is thought to be a contemporary expression aligned with modern healthcare design. The new entrance on Congress St is contemplated to accommodate ADA-compliant access from the street along with stairs and a vehicular drop-off. The streetscape improvements along Congress St itself will rely on the existing City standards, providing continuity along the length of the street and completing the transition to the urban realm.

The intermediate landscape spaces may be located on the campus to provide the transition between these two primary expressions, with landscapes and outdoor spaces that include courtyards, viewing gardens and green roofs.

NEIGHBORHOOD INTEGRATION

Like many urban medical centers established in the 19th century, neighborhoods have grown up around MMC while the Medical Center has continued to grow. The historically synergistic relationship between MMC and surrounding neighborhoods, commercial corridors and parks is described in detail under "History" on page 10). The growth of MMC in the automobile era brought forward challenges related to traffic and parking that are common to medical centers located in urban settings. These issues continue to be at the forefront of MMC's ongoing dialogue with its neighbors and the City, and are addressed in the "Transportation Plan" section of this document (see page 53). Equally important to the relationship between MMC and its neighbors, however, is the integration of campus buildings, open spaces, and parking lots into the physical fabric of the neighborhoods through careful consideration of location, height / massing, use, and overall design.

As outlined in the introduction to this chapter, improving the interface between campus and community was an objective of the MMC Master Facility Plan. The new hospital building proposed in the short-term will transform MMC's frontage on Congress St, which was previously defined by parking structures only.

During the IDP process, the City of Portland encouraged MMC to look beyond its limited zoning boundary to identify areas for potential long-term growth. MMC has worked with abutting land owners

Fig.5.3 MMC IOZ Development Zones



and the City to identify key parcels contiguous with its core campus that can accommodate potential expansion of healthcare-related or supporting uses in the long-term (see **Fig.5.3**).

A majority of these are under-developed parcels on either side of Congress St—an area envisioned for transformation into a new gateway node in the City's Comprehensive Plan (see **Fig.1.8 on page 27**). Nearby but non-contiguous parcels along St

John St were identified to accommodate additional supporting uses, and in particular, the potential for a future employee parking deck.

The following sections summarize MMC's methodology for identifying an appropriate height envelope for these future development zones that will ensure appropriate integration with and transition into adjoining neighborhoods.

DETERMINING MAXIMUM HEIGHTS: OVERVIEW OF METHODOLOGY

MMC has used a multi-part methodology to determine the appropriate height profile for potential future development within the IOZ boundary:

1. Project Definition. The Master Facility Plan has identified heights for short- and long-term projects that reflect MMC's campus modernization needs. These approximate heights, which are expected to be refined through detailed design, were taken as a starting point to determine maximum heights for the proposed building sites.
2. Urban Design Analysis. Heights for zones that are not identified for specific projects were determined using context-sensitive urban design best practices from urban hospital campuses and health districts around the US. These included:
 - » Enabling larger and taller buildings within the campus core while providing height transitions to the scale of residential and historic neighborhoods along campus edges (see "Transitional Zones" **page 110**);
 - » Testing future development blocks for a variety of uses appropriate for mixed-use health districts to identify heights that accommodate desired uses; and,

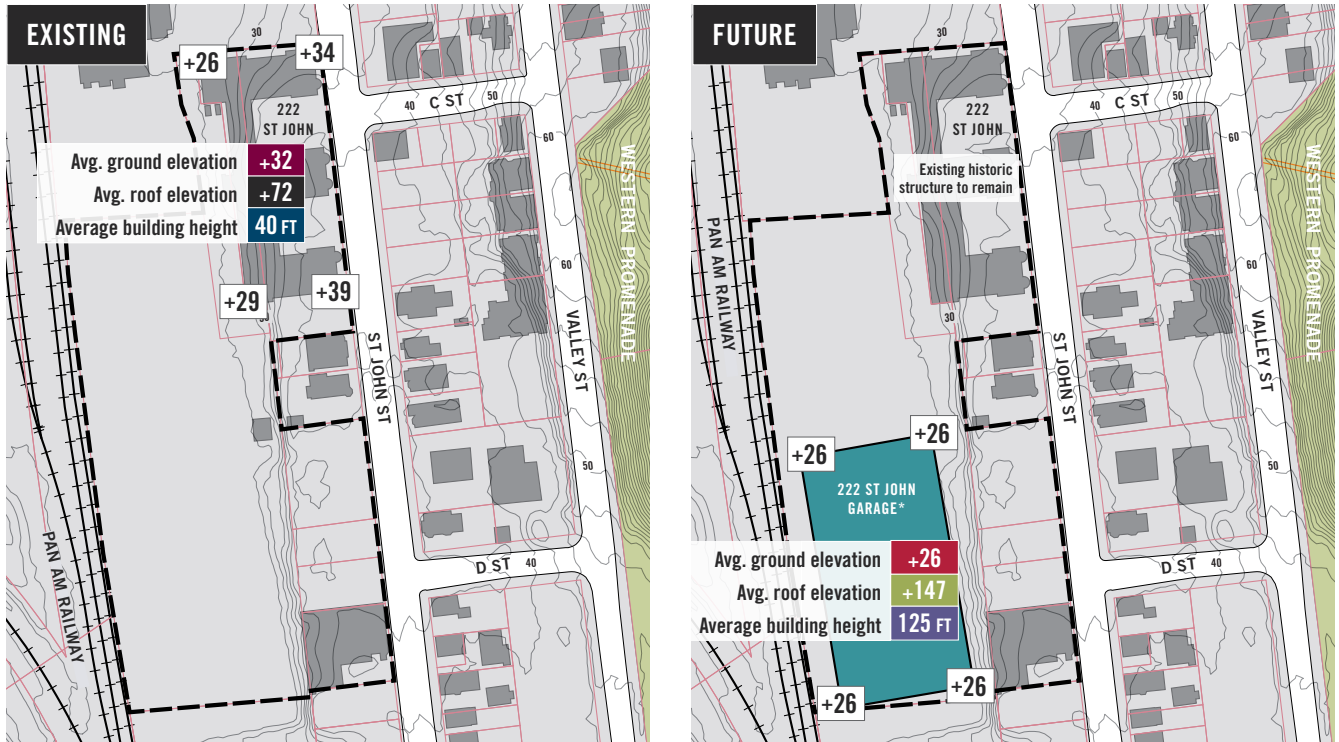
- » Using computer-generated shadow analysis of existing versus proposed height profiles to minimize potential shadow impacts of future development on adjoining public spaces and properties (see "Minimizing shadow impacts" **page 122** for details).

3. Slope Analysis. A 3D terrain model was used to optimize maximum heights based on the average grade of each building site and/or development zone within the IOZ.
4. Visioning. MMC has worked with the City of Portland planning staff to identify maximum and minimum heights and number of stories for new development along Congress St that can provide "gateway" experience that is called for in the City's Comprehensive Plan. The target heights have been identified as 75 feet (6 stories) maximum, and 3 stories minimum along Congress Street. (Note: Actual heights listed vary depending on the average slope within each block).

The resulting future height profiles, which are the basis of the maximum heights requested in the Regulatory Framework, are illustrated in **Fig.5.4** through **Fig.5.8**, along with the existing height profiles for ease of comparison.

The regulatory framework also identifies the maximum number of stories allowed within each

Fig.5.4 Existing and proposed future heights for long-term development parcels along St John Street



* NOTE: The exact location, footprint and access to St John Garage to be determined during detailed design.

LEGEND

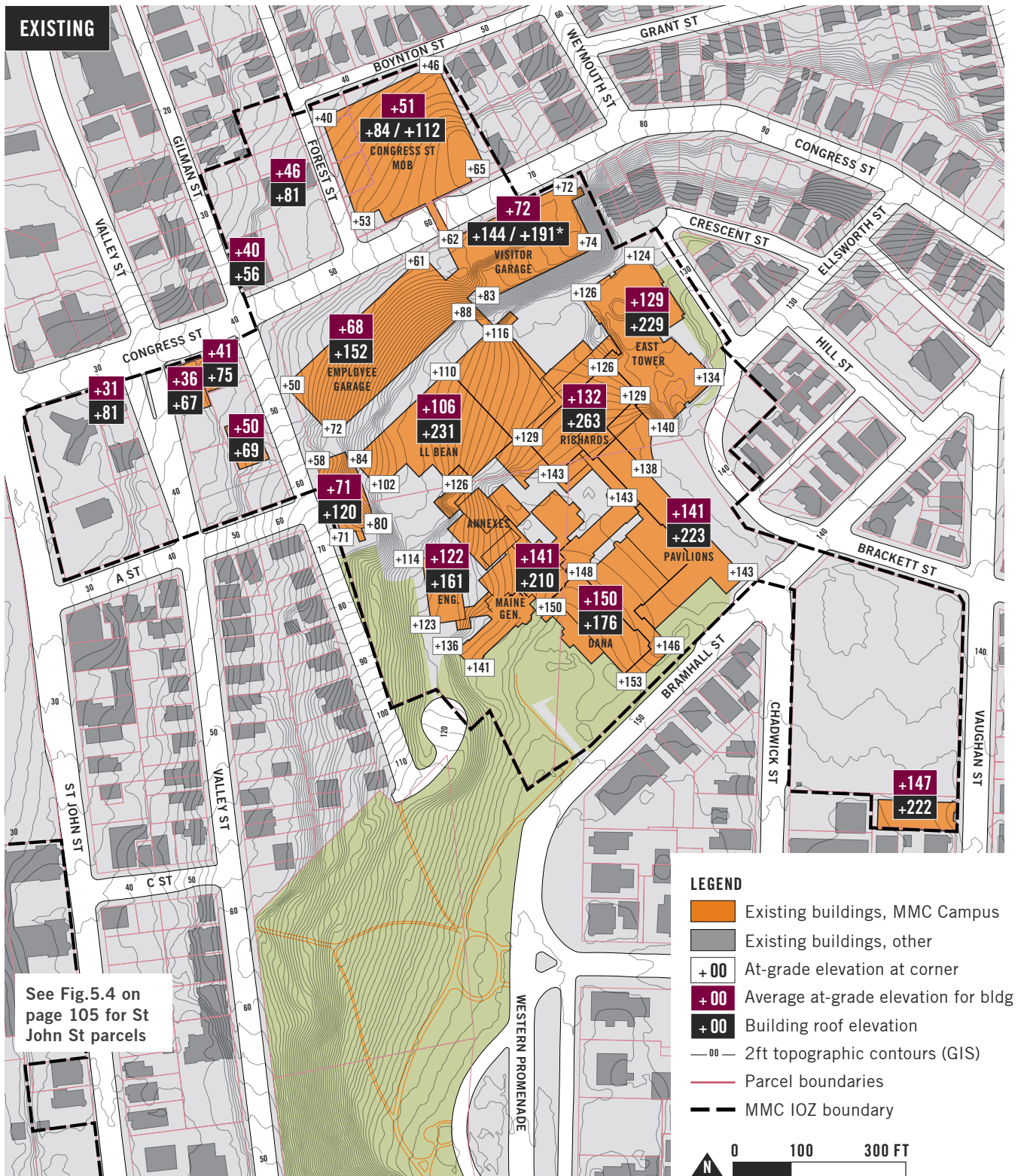
- MMC Short-term projects
- Existing buildings, other
- +00 At-grade elevation at building corners
- 2ft topographic contours (GIS)
- Parcel boundaries
- MMC IOZ boundary



height zone, which are based on a minimum floor-to-floor height of 10ft for allowed uses. Floor heights of actual buildings will vary widely based on program use, and can exceed 20ft for intensive healthcare uses.

A 3D rendering of the maximum height envelopes requested in the Regulatory Framework can be seen in **Fig.5.13** on page 114.

Fig.5.5 Existing Structures within IOZ: At-Grade and Rooftop Elevations



* Height of existing elevator tower on the Visitor Garage, excluding mechanical room on top of tower.

Fig.5.6 MMC Long-Term Development Vision: At-Grade and Rooftop Elevations

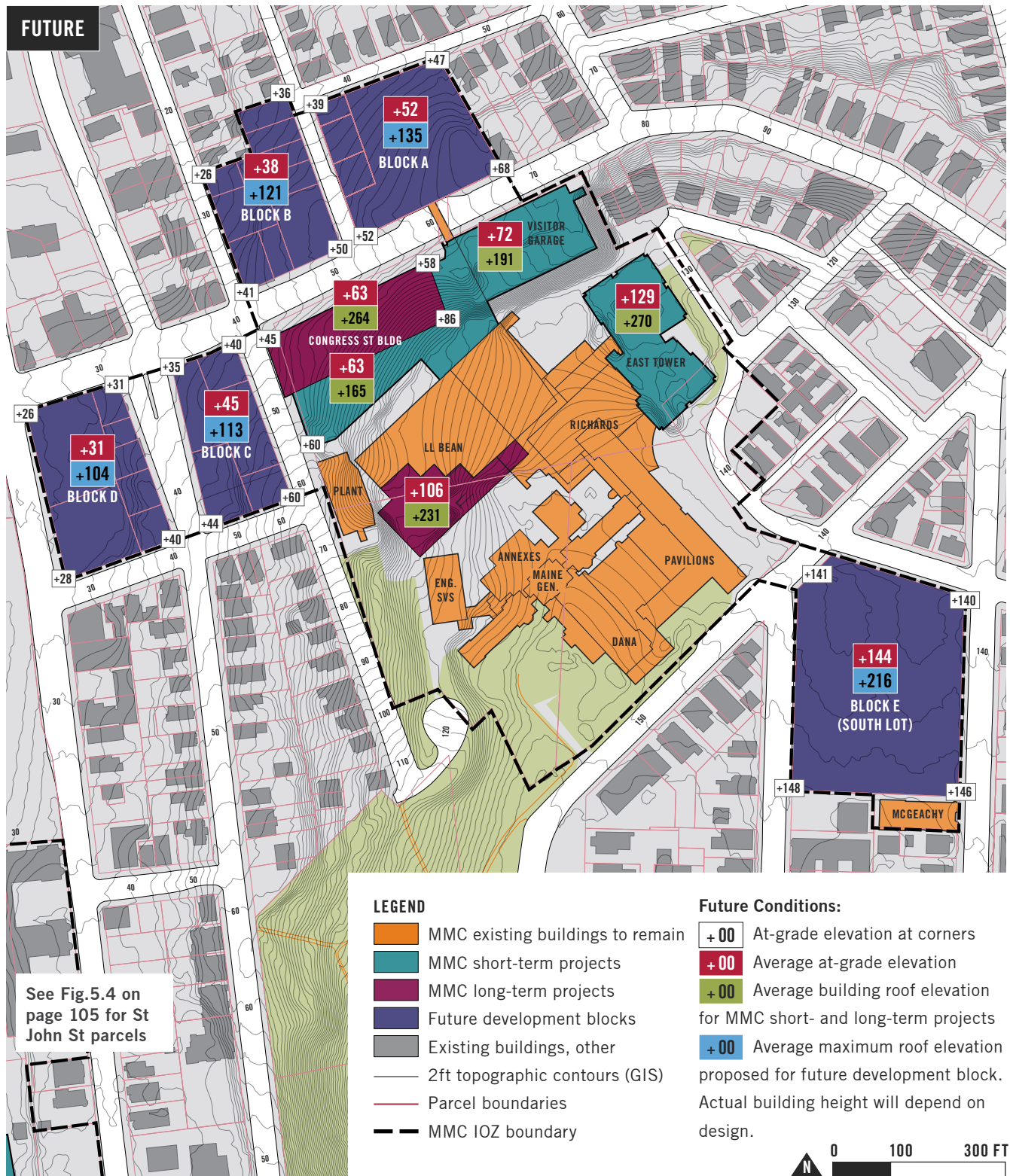
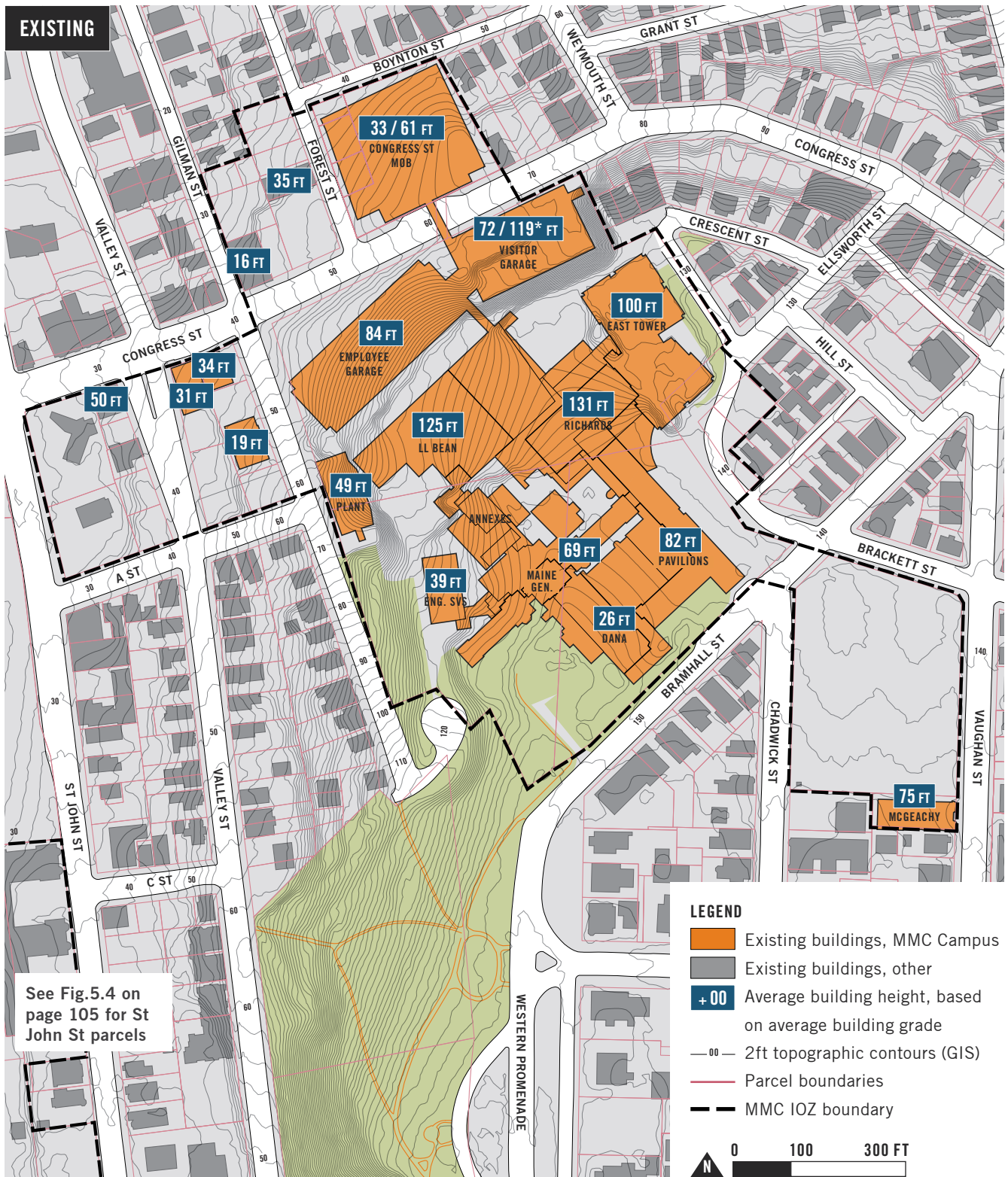
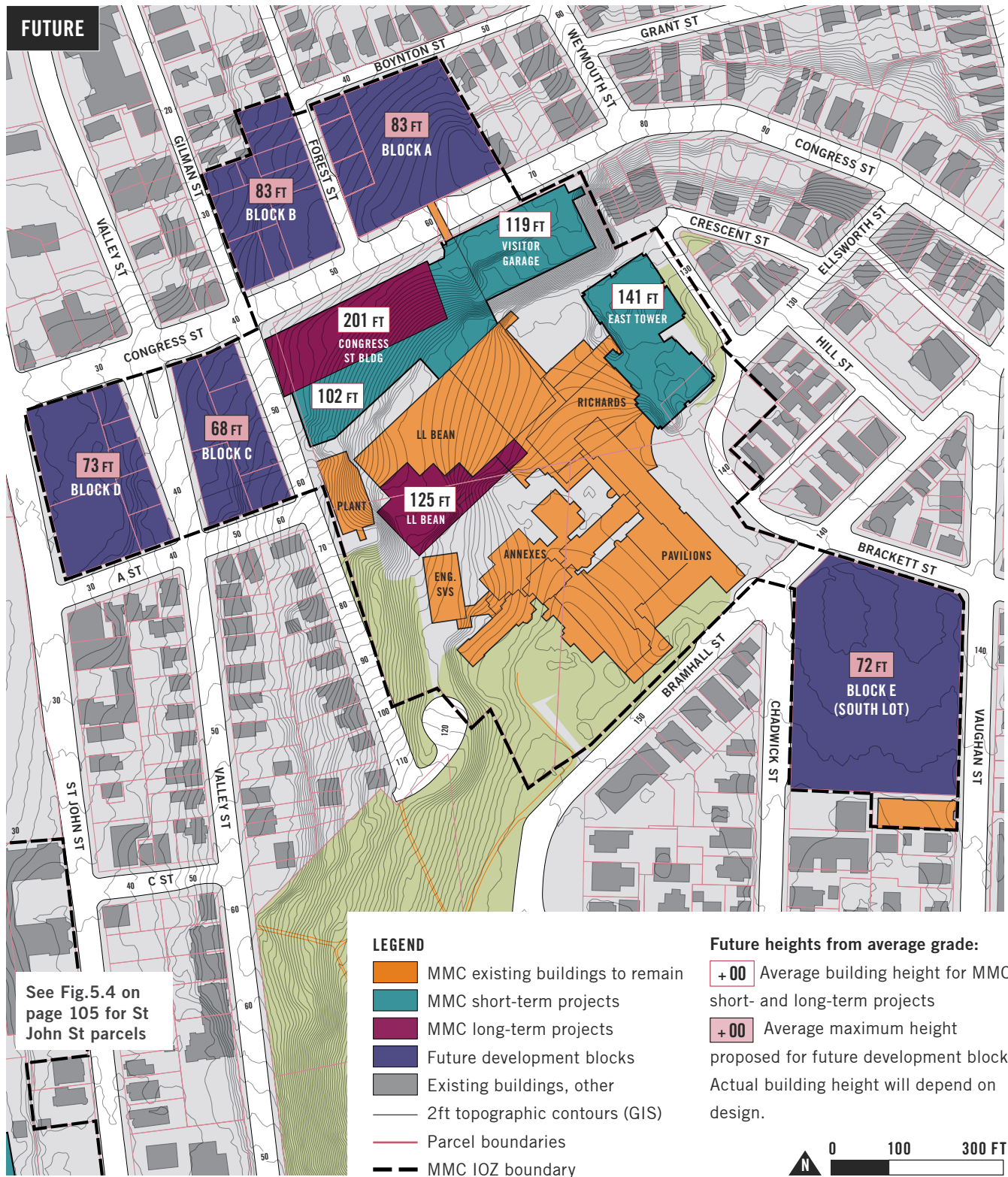


Fig.5.7 Existing Structures within IOZ: Average Building Heights at Average Grade



* Height of existing elevator tower on the Visitor Garage, excluding mechanical room on top of tower.

Fig.5.8 MMC Short- and Long-Term Projects: Average Building Heights at Average Grade



TRANSITIONAL ZONES

In accordance with urban design best practices, MMC has identified "transitional zones" along the edges of the IOZ boundary that abut residential zones where the height of new development can step down to better integrate with the character of local residential streets and neighborhoods. A diagram illustrating this concept is shown in **Fig.5.9** below. The location of specific transitional zones within the IOZ is illustrated in **Fig.5.10** on the following page.

Transition zones are designed to create a consistent scale of development on either side of a given public street. To achieve this goal, most transition zones dictate a height limit matching the maximum height allowed by the zone across the street. The

specific depth of the transition zone where the height limit applies is typically determined by using the "transitional height plane" test whereby a 45° angle line is extended inward from the maximum height line. This test ensures that taller structures on the inner side of the parcel do not negatively impact views from the public street whose character is being preserved.

MMC has used this widely accepted practice to identify and set a 50-ft depth to transition zones illustrated in **Fig.5.10** and required as part of the Regulatory Framework. Diagrams illustrating the testing of key MMC IOZ transitional zones with the "transitional height plane" are included on the following pages.

Fig.5.9 Transition zones: concept diagram

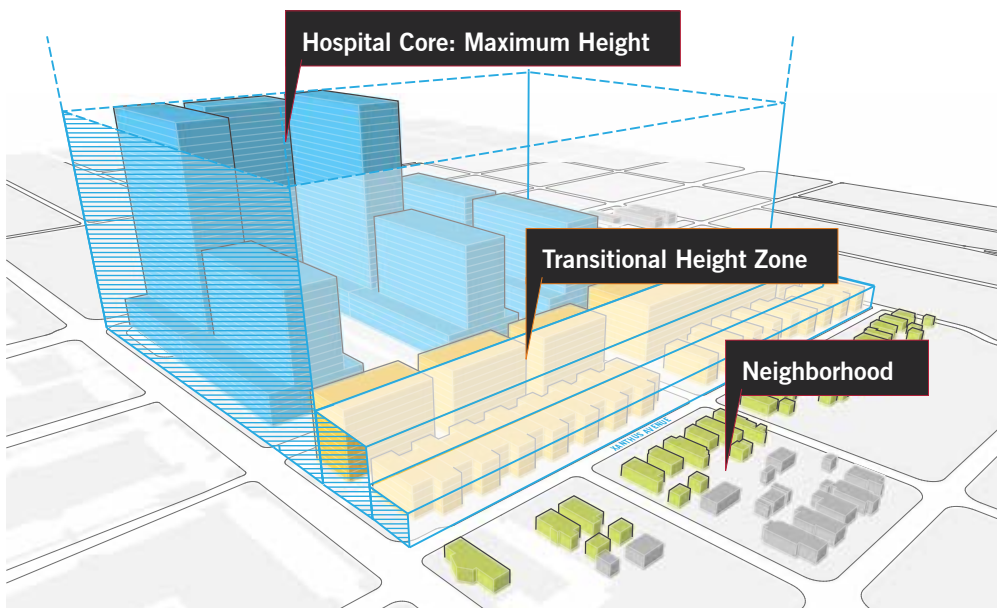


Fig.5.10 Map of proposed transitional zones within MMC IOZ

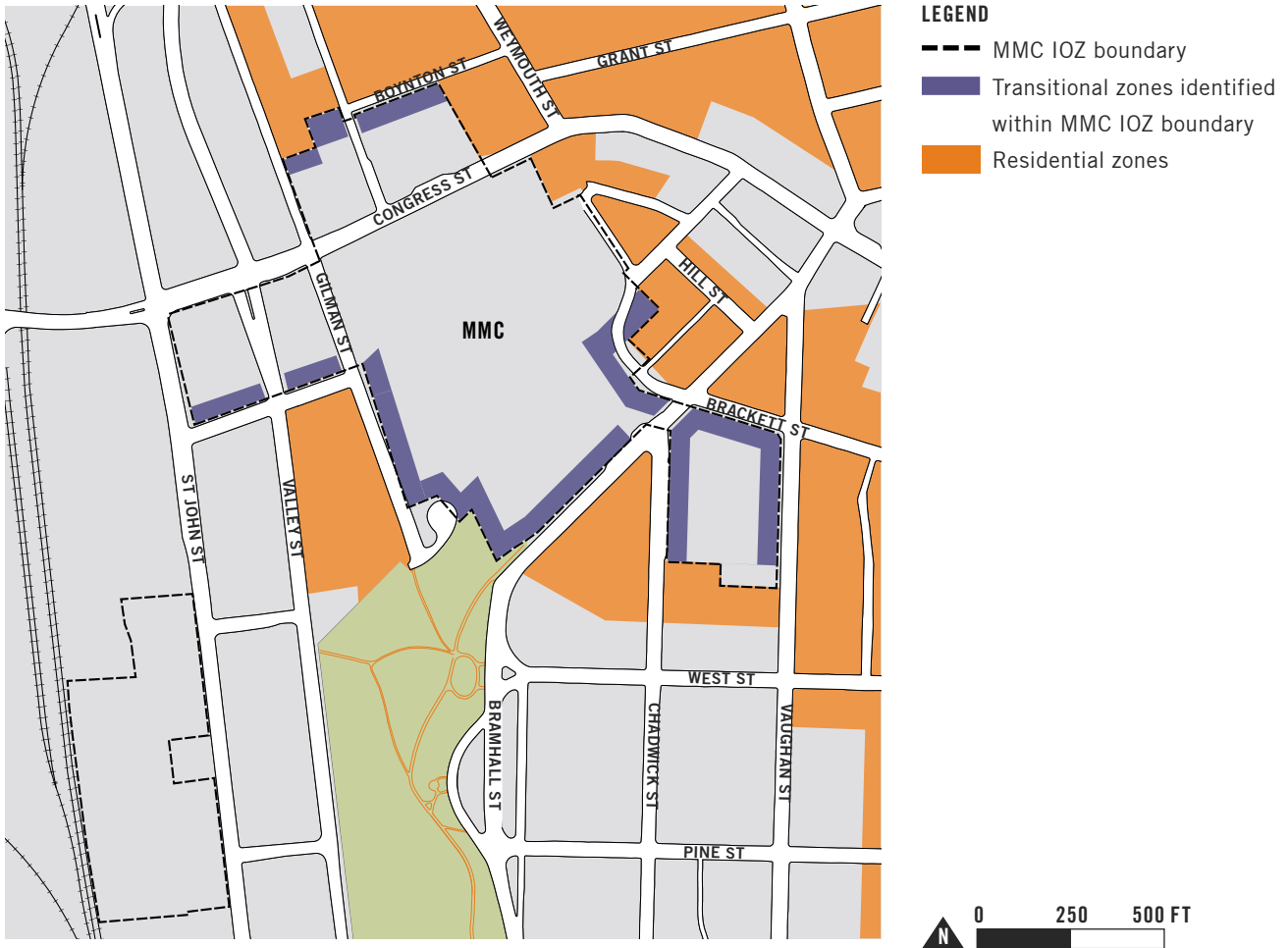
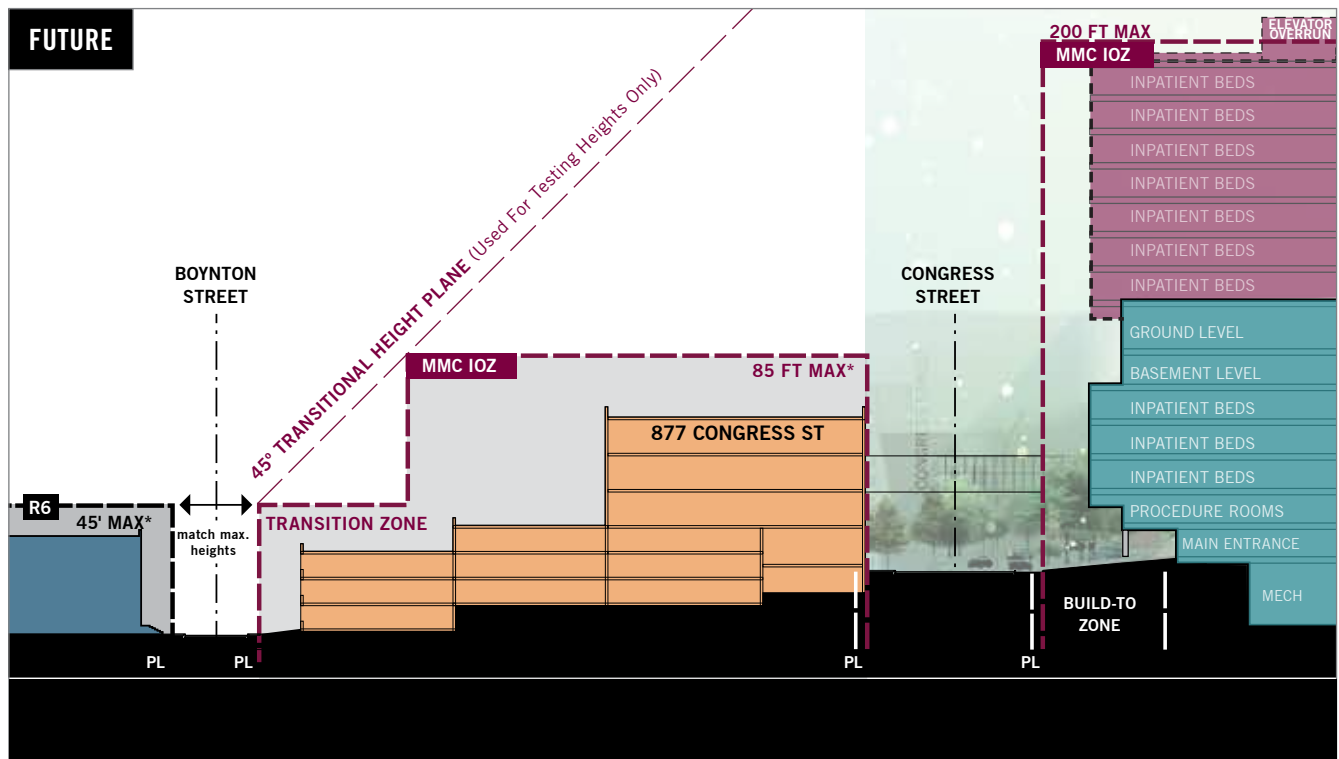
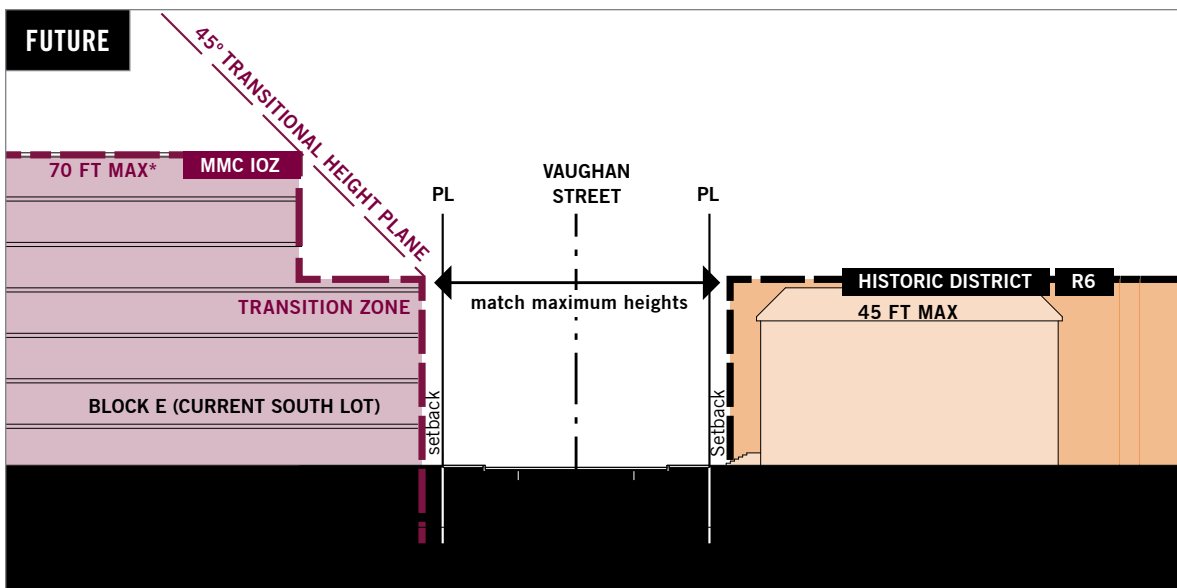
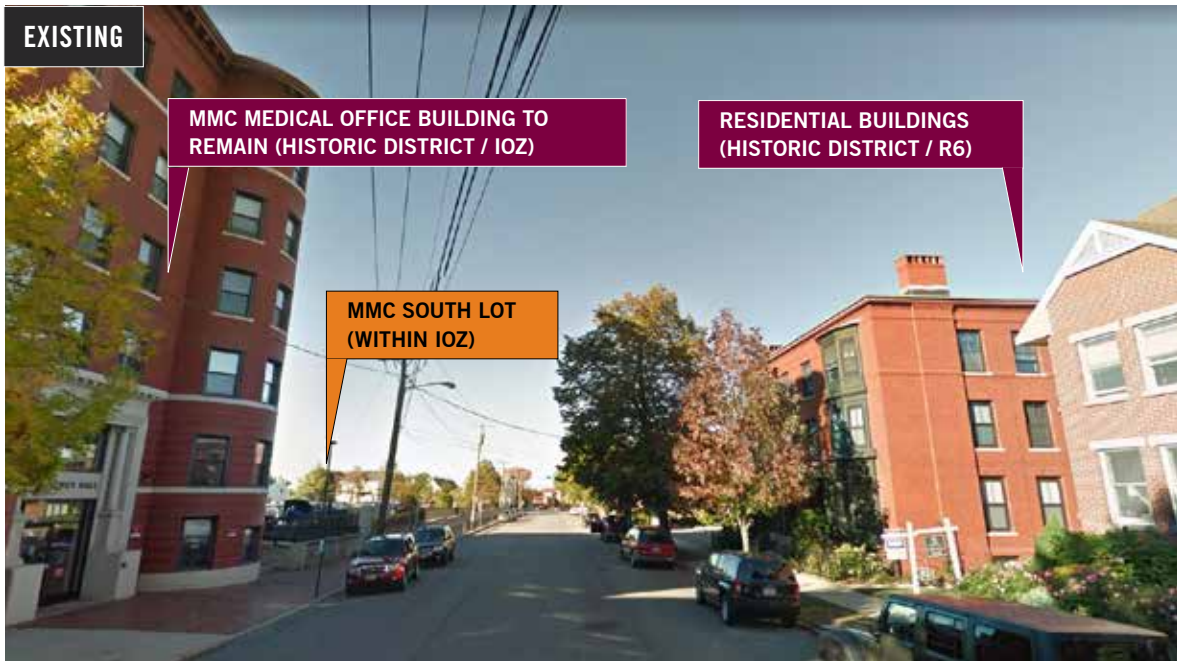


Fig.5.11 Cross-section illustrating height transition from MMC IOZ to Boynton St residential zone north of Congress St



* Average maximum height needed to provide a 75-ft tall structure along Congress St given changes in topography across this site. See "Determining Maximum Heights" on page 104 for details on methodology.

Fig.5.12 Cross-section illustrating height transition from future development Block E (South Lot) within the MMC IOZ to the West End Historic District on Vaughan Street



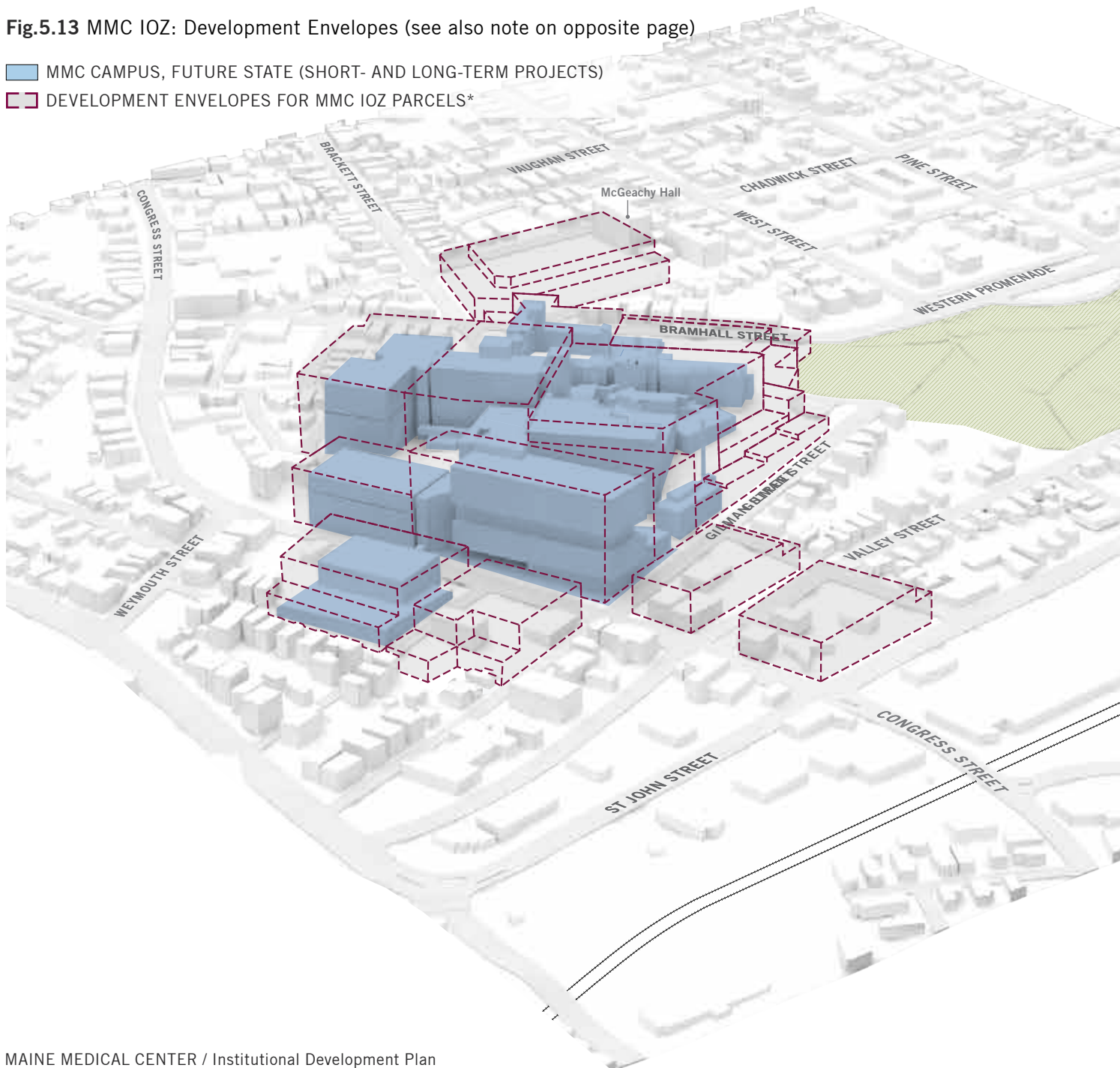
* Average maximum height needed to provide a 75-ft tall structure along Congress St given changes in topography across this site. See "Determining Maximum Heights" on page 104 for details on methodology.

LONG-TERM DEVELOPMENT ENVELOPES

While MMC's Master Facility Plan does not identify specific projects other than those listed on the previous pages (see Fig.2.7 on page 42), all parcels included within MMC's IOZ boundary are considered to be potential zones for redevelopment that supports the effective delivery of healthcare services by MMC to our community in the long-term. Towards this end, MMC has identified context-appropriate uses (see **Table 5.1** at right), development envelopes and design criteria for all IOZ parcels.

Fig.5.13 MMC IOZ: Development Envelopes (see also note on opposite page)

- MMC CAMPUS, FUTURE STATE (SHORT- AND LONG-TERM PROJECTS)
- DEVELOPMENT ENVELOPES FOR MMC IOZ PARCELS*



NOTE: **Fig.5.13** illustrates the maximum height envelopes listed in the MMC IOZ Regulatory Framework. Per the IOZ, the development envelopes only apply to properties that MMC holds right, title, or interest at the time of development. All future development within the IOZ boundary is subject to review for compliance with guidelines and requirements included in MMC's IDP, Regulatory Framework and City of Portland site plan review requirements.

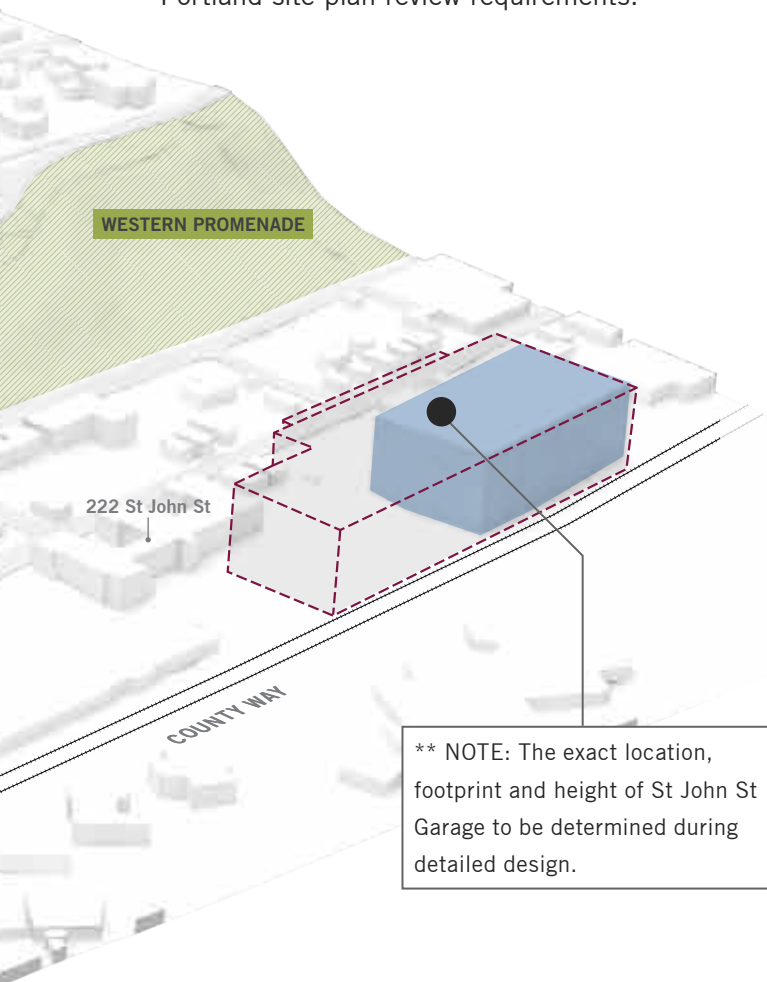


Table 5.1 MMC Potential Future Uses

MMC may locate the following uses within its IOZ boundary:

In addition to the uses permitted in the underlying zone, the following uses are permitted as a matter of right:

Healthcare facilities including but not limited to the following ancillary and/or supporting uses:

- Hospital
 - Medical Office / Clinic
 - Laboratory Center / Services
 - Research and Development (R&D) Laboratory or Facility
 - Educational Facility / Conference Center
 - Administrative / Business Office
 - Accessory Service or Trade Uses
 - Guest House
 - Multi-family housing for healthcare staff and students
 - Rehab / Skilled Nursing Facility
 - Retail Facility
 - Restaurant / Café
 - Employee Service Amenities
 - Day Care Center
 - Fitness Center or Gymnasium
 - Parking Lot
 - Parking Garage
 - Bicycle Storage
 - Heliport
 - Antenna Station
 - Outdoor use areas, such as green areas, parks, gardens, art installations, and other active and passive non-commercial recreation spaces
-

DESIGN GUIDELINES

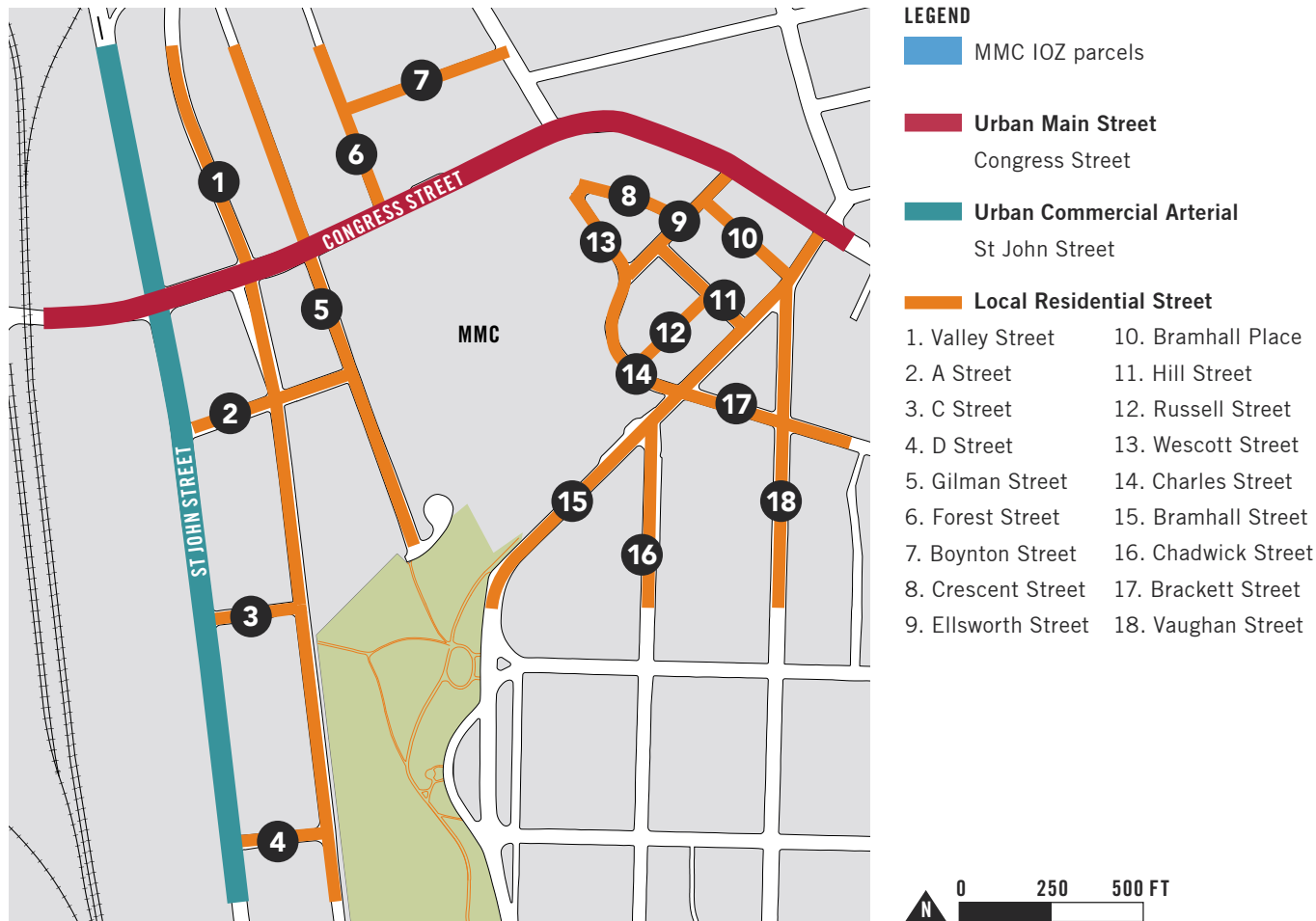
MMC has collaborated with the City of Portland planning staff and sought input from its neighbors to create context-specific "Design Guidelines" for future development within the IOZ boundary. These Guidelines, which are outlined below, are informed by design best practices seen in Portland, and in and around urban hospitals across the US; from City staff recommendations; and from information presented by neighbors in the various public forums held by MMC. They are intended to assist future development in the IOZ to meet the goals and vision for the MMC campus and create context-sensitive buildings.

GENERAL GUIDELINES

MMC will follow these general guidelines for building design within the IOZ boundary:

1. New buildings will be designed to contribute to the campus vision and organizational goals identified in the Master Facility Plan and the Transportation Plan (see Chapters 2 and 3), and best practice design standards for healthcare.
2. The overall composition and experience of the campus will be considered for cohesive identity from approaches along Congress St and I-295.
3. Building entrances will be oriented toward, located adjacent to, or accessible from, a sidewalk in a public right-of-way to create a pedestrian-oriented environment.
4. Buildings designs will relate to and be compatible with the existing, or—in areas of change—planned character of residential and commercial neighbors. Design elements and characteristics to consider include:
 - » Building placement and relationship to the street
 - » Overall massing and scale
 - » Roof forms
 - » Proportion, directional expression, and composition of facades
 - » Rhythm of solids to voids
 - » Rhythm and proportion of openings
 - » Rhythm of entries and projections
 - » Relationship of materials, texture, and color
5. Façade materials of buildings will be of high quality, and contribute to an attractive public realm.
6. The design process will consider long views of new buildings including roofs and associated structures to minimize visual impacts and provide visual interest. Rooftop appurtenances will be either screened from view or integrated into the building design, and will not be visible from adjacent streets, Western Promenade, or the Congress Street approach. (The helipad cannot be screened for safety reasons.)
7. Vibrant, contributing and sustainable active ground floors will be provided to add activity and a sense of place to the priority node

Fig.5.14 Typologies of Public Streets in and around MMC IOZ



identified in the City's Comprehensive Plan.

Fig.5.15 on page 118 illustrates zones along Congress St deemed to be most suitable for community-oriented uses / retail.

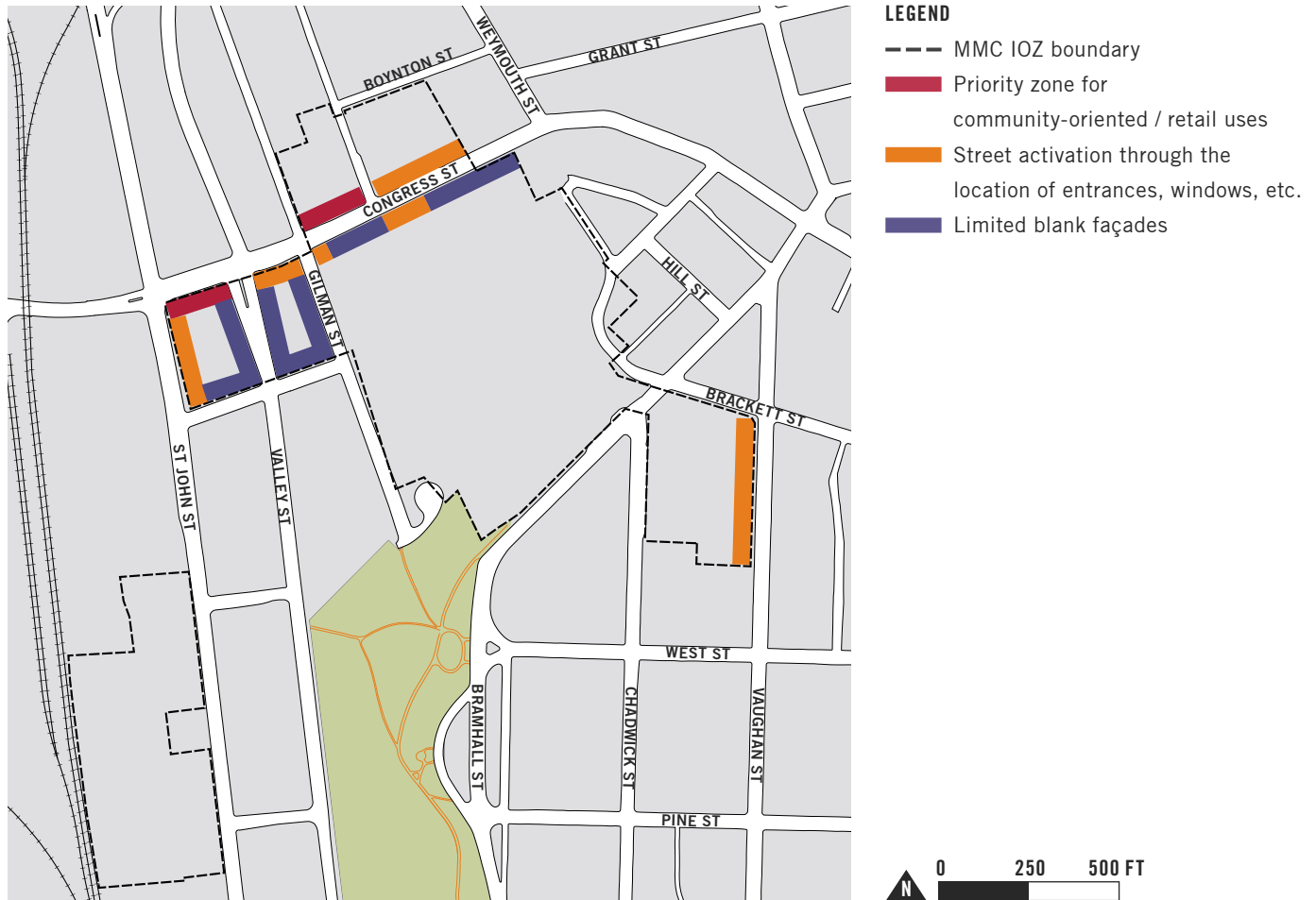
8. In areas where the occurrence of limited blank façades along public right-of-ways are unavoidable due to changes in topography or building use requirements, the following strategies

will be used to mitigate visual impact:

- » providing elements of visual interest along any blank walls facing public streets, and,
- » working with the City of Portland to ensure adequate lighting of public sidewalks to create a safe pedestrian experience.

Fig.5.15 on page 118 illustrates potential locations of blank walls within the IOZ boundary.

Fig.5.15 Frontage: Types of Activation



9. Any parking structure within the IOZ will:

- » screen views of cars from public rights-of-way;
- » provide elements of architectural interest on upper floors to contribute positively to long views and gateway approaches; and,
- » for garage structures within 20' of the public right-of-way, meet street activation intent according to street type (see Fig.5.15 above).

BUILDING RELATIONSHIP TO PUBLIC STREET

In walkable urban environments, buildings are designed with pedestrian scale and uses in mind. Buildings contribute to the public realm through the siting and design of street-facing façades, and of lower floors that engage with street-level activity.

A building's relationship to a public street should be informed by the typology of that street, which in turn is defined by the character of existing or planned development lining the street. MMC has identified three distinct typologies of streets within the MMC's IOZ boundary (see **Fig.5.14 on page 117**). Design guidelines for future redevelopment along these street types are outlined below.

1. Urban Main Street (Congress Street)

Congress St is considered by many to be Portland's "main street". The winding street is defined by "zero-lot line" developments that border the sidewalk, and a series of civic monuments and squares distributed along its length. The IDP planning process has identified an opportunity to extend this "main street" feel from the emergent Bramhall Square (at Bramhall and Congress Sts) all the way to the railroad crossing where Congress St emerges from the influence of the I-295 interchange. MMC aims to contribute positively to the regeneration of Congress St in this area by ensuring orderly redevelopment of abutting IOZ parcels.

MMC buildings abutting Congress St will be designed to:

- provide urban-levels of density;
- create an urban street wall that provides a sense of enclosure to the public realm;
- have their primary orientation towards Congress St;
- activate the public sidewalk with building entrances, lobbies, etc.;
- to the extent possible, given programmatic needs, provide visual interest and ensure pedestrian safety with views into and out of the building along the public sidewalk;
- to the extent possible, given programmatic needs, provide space for community-oriented uses such as services or retail that can be shared between MMC users, neighbors and the broader Portland community; and,
- support the existence of neighborhood amenities such as restaurants and other retail uses providing services to local residents and employees both during the day and evening hours.

The topography and orientation of Congress St in this zone, however, poses significant challenges to achieving some of these design goals. The steady, steep climb of the street makes it impractical for large footprint buildings to align ground floor windows with the rising profile of the sidewalk (see

Fig.5.5 on page 106 for an analysis of building ground elevations). The east-west orientation of the street, combined with the more than 50-ft rise of Bramhall Hill south of Congress St, makes it challenging to provide an urban street wall that does not shade Congress St for most of the time (see shadow studies on page 124). To the extent possible, MMC buildings will utilize the general guidelines related to blank façades to mitigate these conditions (see page 117).

In addition to the guidelines listed above, buildings that have frontage on Congress St and that include parking components will activate portions of or place liner buildings along the ground floor facing Congress St. MMC has no plan to develop a stand-alone garage on Congress St as of the date of this IDP.

2. Urban Commercial Arterial (St John Street)

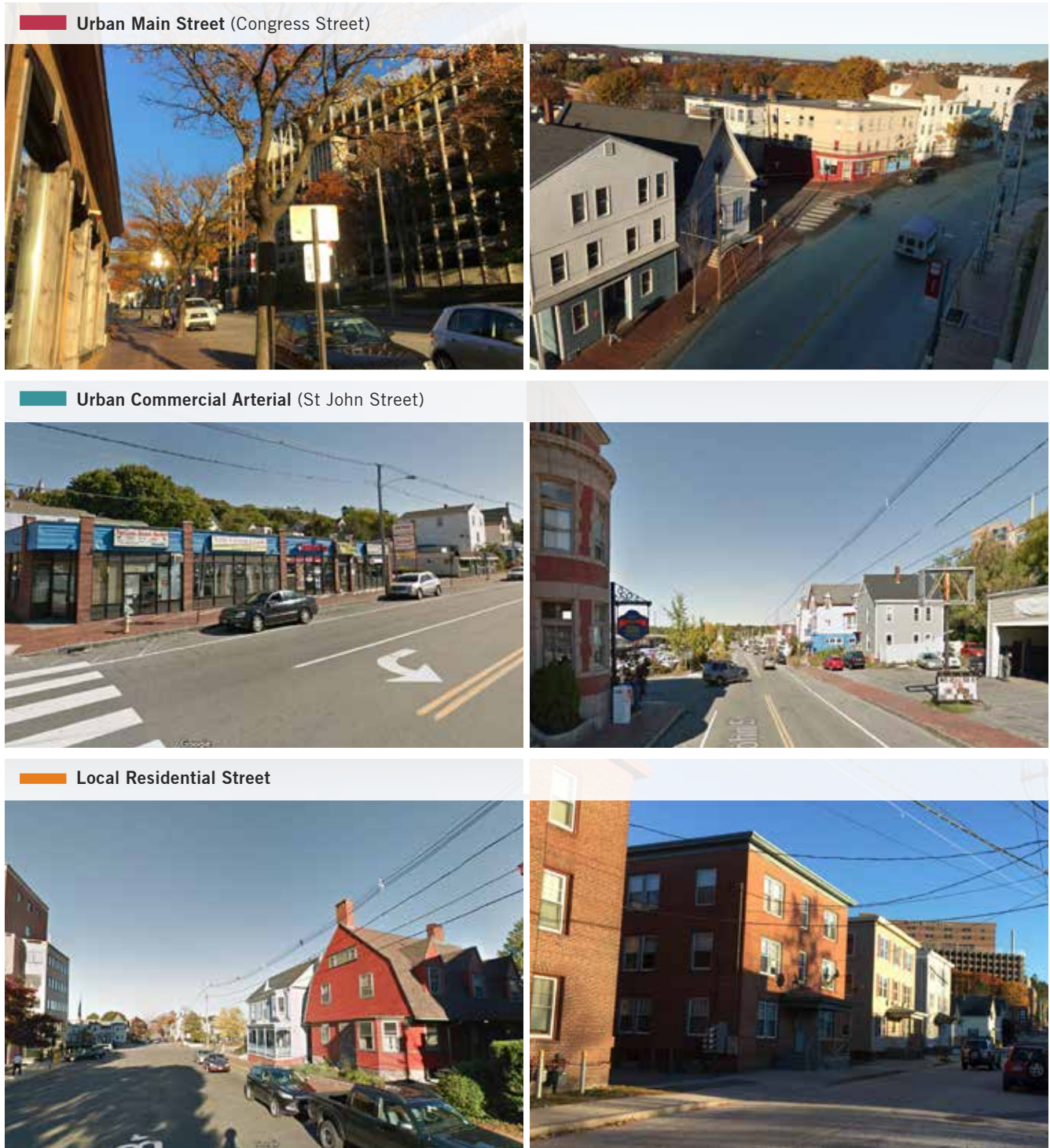
St John St is a significant arterial linking vehicular traffic between I-295 / Park Drive / Congress Street to the north, and Veterans Memorial Bridge / W Commercial Street to the south. The commercially-zoned street is flanked by a wide variety of uses that hint at its railroad-era origins (warehouses and workers' homes) as well as its current-day arterial use (strip centers and fast food restaurants). While it has some elements of a walkable street such as sidewalks and on-street parking, large stretches of the street prioritize the car with frequent curb-cuts, and street-facing parking lots.

MMC's IOZ boundary abuts St John Street between Congress and A Streets. MMC envisions this block to be redeveloped, in the long-term, in accordance with the Congress St design guidelines outlined on the previous pages. The new development will aim to provide architectural definition to the corner of Congress and St John Streets, and—to the extent possible—extend the character developed for the Congress St frontage along St John St.

3. Local Residential Street

The MMC IOZ boundary is crossed by and abuts a number of local streets that are lined with a wide variety of residential structures ranging from 3-4 story multi-family apartments on Boynton St to single-family mansions along the Western Promenade. During the IDP process, MMC has worked with the City of Portland planning staff, the Planning Board, and neighborhood representatives to identify a balanced approach to redevelopment along local streets that provides appropriate height transition from institutional to residential character. This approach is outlined in detail under "Transitional Zones" on page 110.

Fig.5.16 Photographs illustrating existing character of streets in and around the MMC IOZ



CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

MMC aims to create a safe environment for all in and around its campus. MMC will incorporate the following design strategies that have been demonstrated to deter crime:

- Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials
- Providing clear and properly-sized signs in safe locations to ensure safe wayfinding
- Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines
- Designing street-level elevations to minimize potential hideouts
- To the extent possible, given clinical program demands, providing views in and out of building ground floors populated by users to serve as "eyes on the street"
- Generating foot traffic on public sidewalks with pedestrian entrances

MITIGATING IMPACTS THROUGH DESIGN

MMC is committed to addressing any perceived negative impacts that campus development may have on adjoining neighborhoods. This includes actions to mitigate impacts of daily campus operations, which are discussed under "Operational Sustainability" on page 93. A plan for mitigating construction impacts is outlined, along with a plan for continuous neighborhood input and engagement, in the "Neighborhood Engagement" chapter on page 128. This section summarizes strategies that may be used, as appropriate, to minimize negative impacts of proposed new development.

Minimizing Shadow Impacts

In order to understand the potential shadow impact of proposed campus projects on surrounding properties, MMC has prepared detailed shadow studies during the Master Facility Planning process (see **Fig.5.17** through **Fig.5.20** on the following pages). The overall building heights were kept to a minimum to minimize shadow impacts in areas such as Congress St where street alignment and topographic changes contribute to longer shadows. The proposed Congress St Development (see "Short-Term Projects on page 44) was pulled back from the street to the extent possible to minimize this impact, while also providing a more generous public sidewalk that supports pedestrian activity in front of this new gateway structure.

Context-Sensitive Lighting Design

The location and context of buildings are considered in the design of artificial lighting for new development. While a majority of this work is completed later during the design process and presented during Site Plan review, MMC has already incorporated some preliminary concepts related to lighting intensity into its Master Facility Plan. A key example is the concept design for the Congress St Development, which is intended to animate the Congress St frontage 24/7 with light emanating from its glazed circulation and waiting areas facing the street on the lower floors.

Mitigating Wind Impact

Upon final design of applicable site plans, MMC will consult with the City of Portland's Arborist to selectively determine the placement of trees or other landscape features on any new landscape areas to minimize any wind impacts created by the mass of new development.

Preserving and Enhancing Viewsheds

MMC understands the significance of historic and gateway viewsheds to the Portland community. The Maine General Hospital, a landmark civic building situated atop a hill, was designed to complement the sweeping views of the Fore River from the Western Promenade. Likewise, MMC will design new buildings along Congress St to provide an aesthetically pleasing gateway experience for all entering into the peninsula at this point.

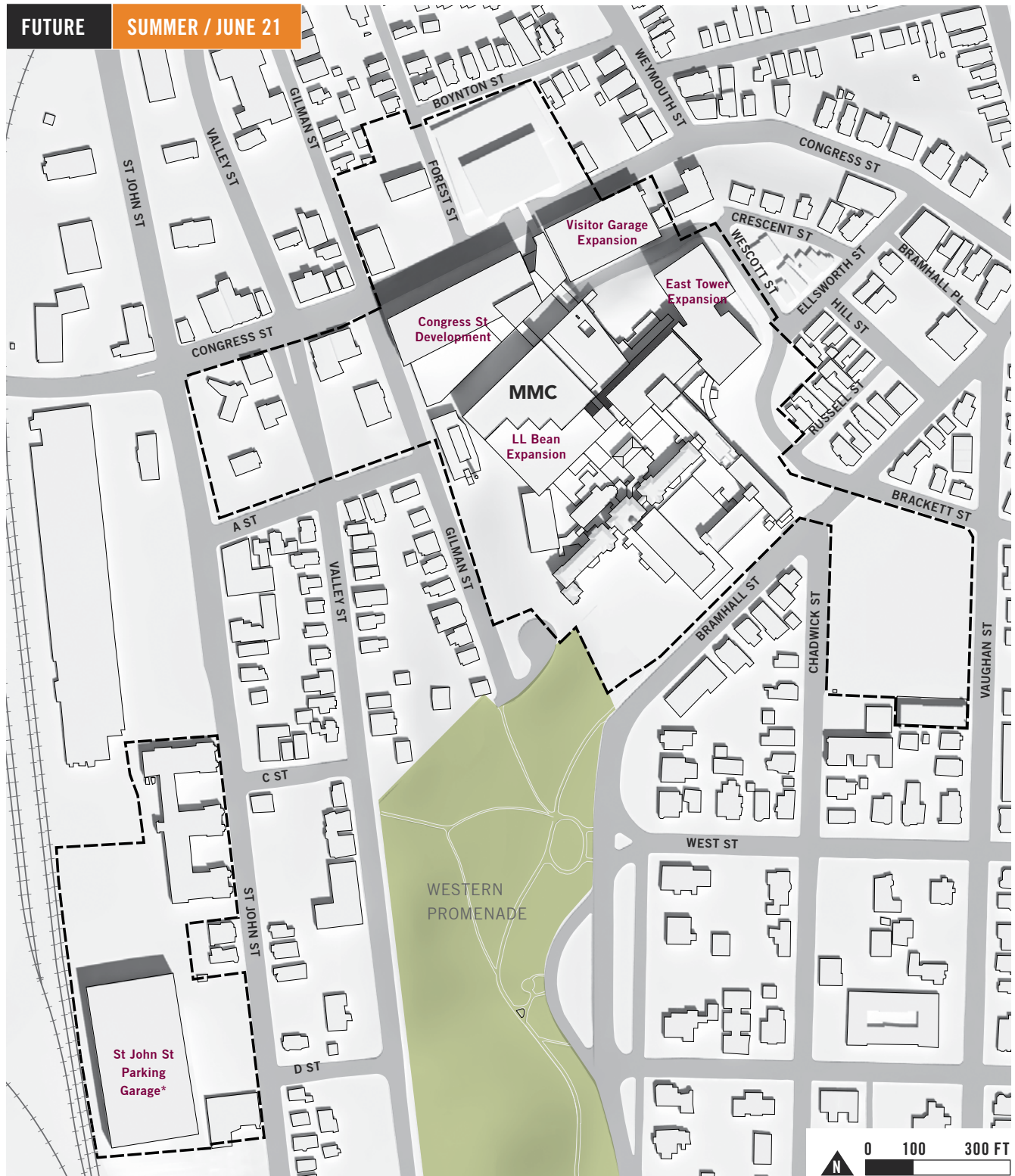
MMC embraces the historic Western Promenade as a site from which to take in views of the countryside and the White Mountains, and a valuable open space amenity for campus users as well as for the broader community.

MMC has met with the Parks Department to review the potential impact of the proposed 222 St John St Garage to public views from the Western Promenade towards the White Mountains, and will work to mitigate potential impacts through design. MMC will also work to minimize potential impacts to the Maine Central Railroad Building as a designated historic landmark.

Fig.5.17 Computer-generated shadow study / Existing conditions on June 21, noon



Fig.5.18 Computer-generated shadow study / Proposed long-term projects on June 21, noon

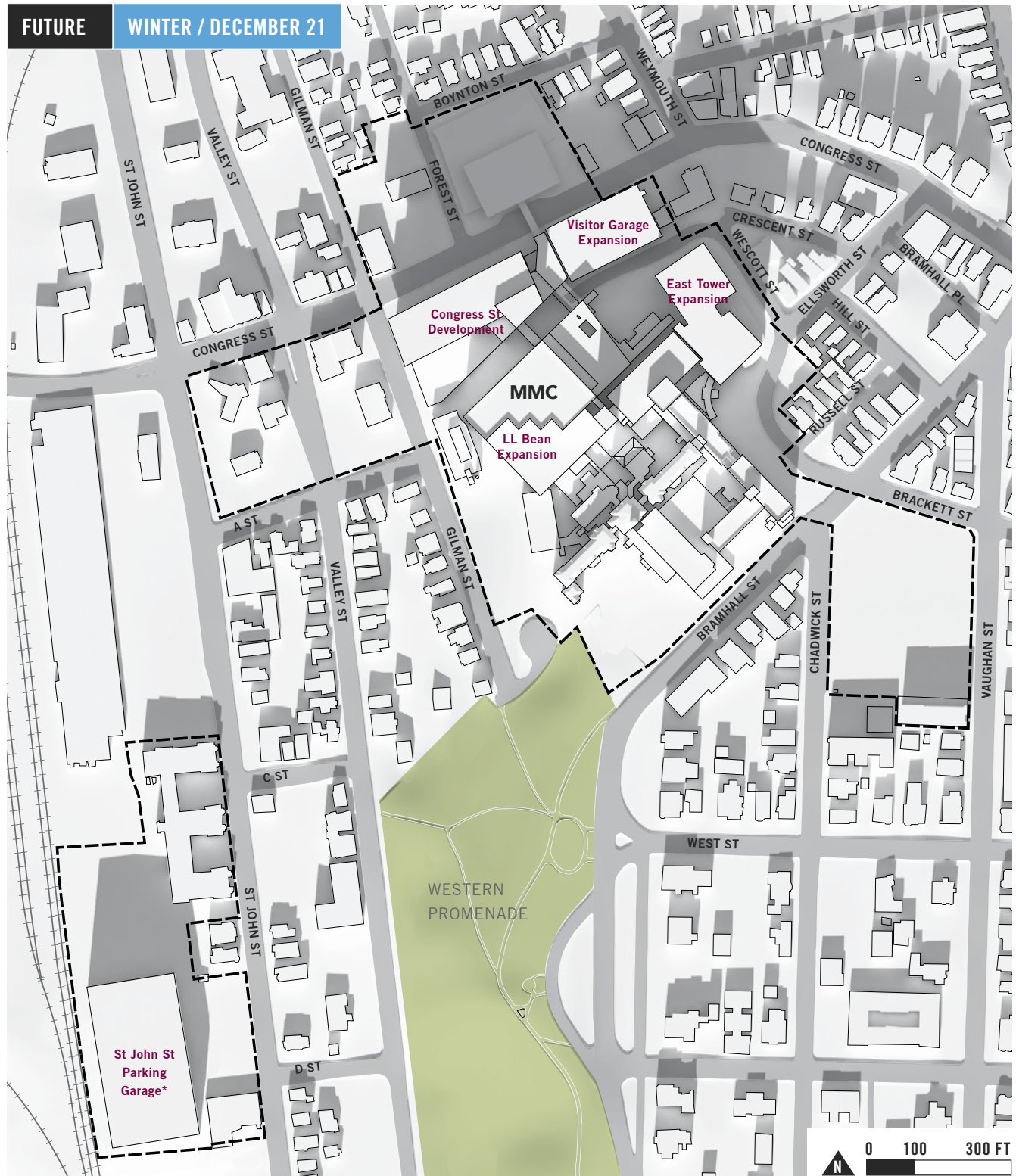


* NOTE: Exact garage location and footprint to be determined during detailed design.

Fig.5.19 Computer-generated shadow study / Existing conditions on December 21, noon



Fig.5.20 Computer-generated shadow study / Proposed long-term projects on December 21, noon



* NOTE: Exact garage location and footprint to be determined during detailed design.

NEIGHBORHOOD ENGAGEMENT

Maine Medical Center strives to be a good neighbor to surrounding communities. Ongoing dialogue and exchange of information and ideas is a core tenant of MMC's neighborhood engagement plan.



ONGOING COMMUNITY ENGAGEMENT

MMC's number one priority is superior patient care. In order to achieve this goal, it must address its employees' needs. However, MMC also recognizes that realizing its vision depends on its success as a corporate citizen and a neighbor.

MMC's main campus is situated at the intersection of several diverse residential and mixed-use neighborhoods. MMC considers itself a part of the West End, Western Promenade, Parkside, St John Valley, and Libbytown neighborhoods (see **Fig.1.5 on page 19**). MMC values its role in these neighborhoods and seeks to be a productive force in maintaining their health and quality of life. To this end, MMC endeavors to maintain an open dialogue with its neighbors, to quickly and fairly resolve disputes, and to ensure that its growth enhances its neighborhoods' vibrancy, economy, and livability. Building and maintaining trust is essential to successfully achieving these shared goals. MMC commits to building and maintaining trust not only by providing superior care to its neighbors and the larger community, but by clearly communicating and consistently engaging its neighbors on both the institution's core mission and neighborhood concerns.

It is important for MMC, its neighbors and the City to maintain the dialogue that has been established during the development of MMC's IDP. As a result, MMC proposes the following ongoing community

engagement to ensure the surrounding neighbors are kept apprised of MMC's future development plans, and to understand any neighborhood issues related to the operations of the MMC campus, the following engagement process shall be established:

- On a quarterly basis, MMC's Chief Operating Officer shall host a group meeting comprised of the following members:
 - » the President or Chair (or a designee of the same) of the following Neighborhood Associations: St John Valley, Western Promenade, West End, Parkside, and Libbytown
 - » The Director of Planning at the City of Portland, and,
 - » The District 2 Portland City Councilor
- The group shall develop a Charter by which these quarterly meetings shall be conducted and minutes shall be made of each meeting. The Charter and the minutes shall be delivered to the City's Neighborhood and Island Liaison within 30 days of their adoption.
- In addition, the group shall annually complete a "checklist of actions" to be addressed by the group and the completed checklist shall also be filed with the City's Neighborhood and Island Liaison.

CONSTRUCTION MANAGEMENT PRINCIPLES

- To further an open dialogue, MMC will engage neighbors in more routine dialogue during major planning efforts. These meeting invitations shall also be extended to the Director of Planning at the City of Portland and to the District 2 Councilor.
- During construction, MMC shall provide contact information for a designated community liaison on its website for day-to-day inquiries and comments. Inquiries and comments shall be logged by MMC and responses shall be provided by MMC in a timely fashion.
- MMC shall also employ social media to make information about a pending project readily available to the public. This shall include a dedicated website page and a dedicated email address for residents to ask questions, provide suggestions or voice concerns.
- Finally, MMC will set up a text alert system to notify any subscriber of advance construction impacts which may be necessary during construction.

The following section provides an overview of the construction management principles that MMC has identified to minimize impacts from noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding buildings and communities. It is MMC's full intent to schedule and conduct operations in a manner that will minimize, to the extent feasible, the disturbance to the public in areas adjacent to the work and to occupants of buildings in the vicinity. MMC will adhere to the Construction Management Template requirements attached to the IDP as Appendix A.

COMMUNICATION INITIATIVES

MMC will provide a method of communication between City of Portland, neighbors, and the construction team based on the anticipated impact of the construction project. For large construction projects, MMC will use its website, social media, and provide a dedicated email address to enable communication with its neighbors.

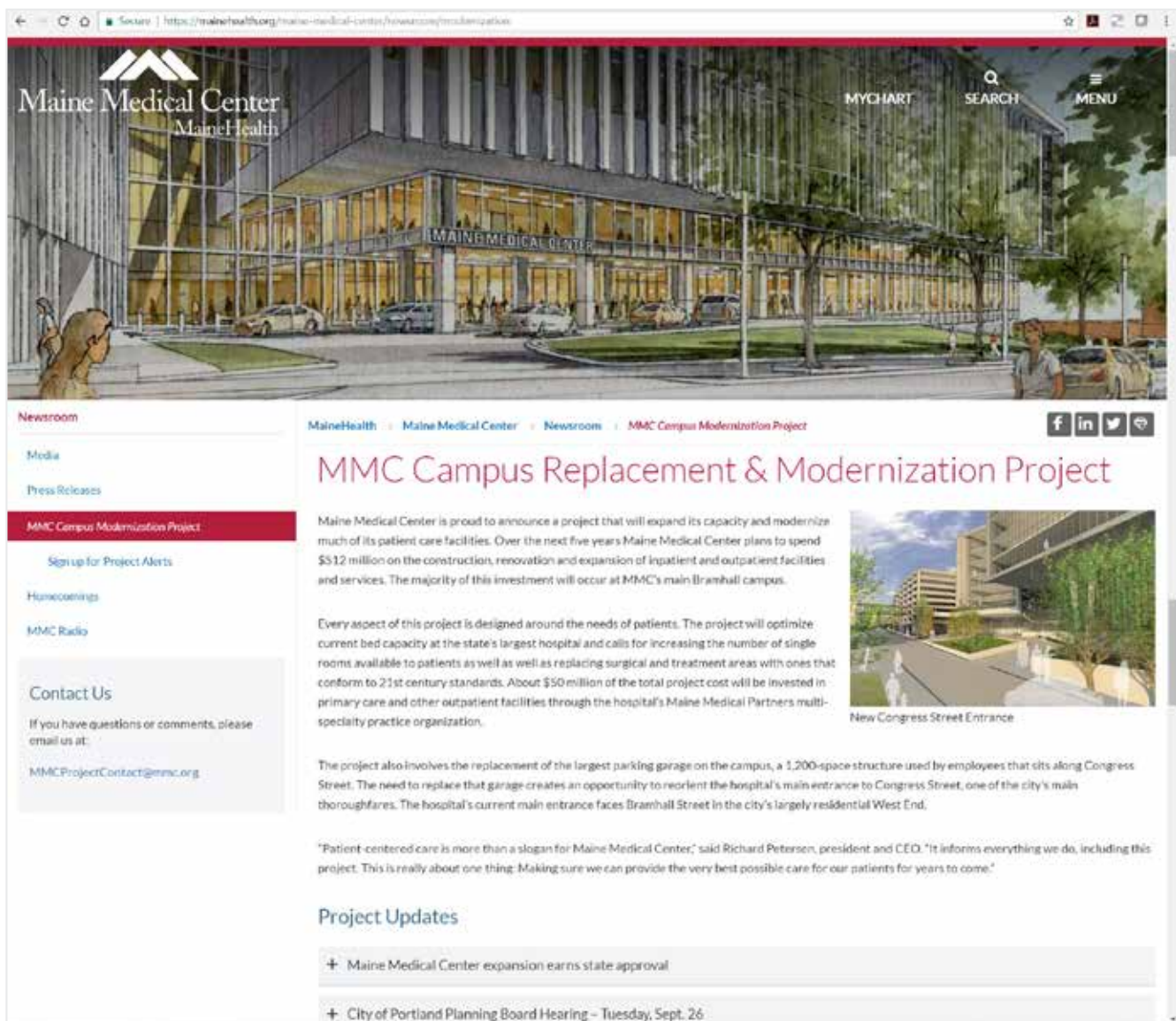
For short-term projects identified in the Master Facility Plan, MMC will implement a communication strategy using social media and texting to alert surrounding neighbors of activities that may cause disruption.

MMC has created a dedicated webpage on its website devoted to the short-term projects to inform the public of important information related to the Project (<http://www.mmc.org/modernization>).

Information and updates on the Project are regularly posted including project updates, neighborhood meeting minutes, Portland Planning Board information related to the project, news releases, fact sheets and frequently asked questions. As construction commences, important alerts regarding

construction activity such as activities impacting roadways, potential creation of dust, vibration, or noise, etc. will also be posted. To the extent possible, MMC will provide two week advance notice of such activities.

Fig.6.1 Screenshot of MMC Website dedicated to the Project at <http://www.mmc.org/modernization>.



MMC has created a dedicated email address that allows members of the public to ask questions and provide information. These emails will be answered in a timely fashion by the people directly involved in the construction activities.

Information about the construction project will be proactively shared on a regular basis for the duration of the project.

CONSTRUCTION SCHEDULE

MMC will provide an estimated project schedule at the beginning of a construction project and provide regular updates through-out construction. The frequency of construction schedule updates will be determined by the project's estimated impact on the surrounding area.

CONSTRUCTION MANAGEMENT PLAN

Prior to construction, MMC will develop comprehensive Logistics and Safety Program. Maintaining normal campus operations and public safety, and minimizing impacts to areas surrounding the campus, will be the primary considerations in this process. MMC will utilize the City's Construction Management Plan template to develop a Construction Management Plan that will be submitted with a Site Plan application.

PROJECT WORK HOURS

Construction work hours will be predetermined before the start of any construction project and limited in order to minimize impact on the areas surrounding campus and to complete the project expediently.

PUBLIC SAFETY AND ACCESS

Pedestrian walkways and business access will be clearly marked and maintained through-out the construction period.

In general, secured fencing will be used to isolate construction areas from pedestrian traffic and Police Details will be provided, when necessary, to facilitate traffic flow. MMC will work to ensure the sidewalk protection minimizes impact to pedestrian and vehicular flow. The specific configuration of sidewalk protection and pedestrian access around the site will vary depending on the phase of the work being performed. Construction procedures will be designed to meet all OSHA safety standards for specific site construction activities. MMC will provide sufficient temporary site lighting to ensure the safety of all pedestrians accessing the sidewalks around the site, including lighting at all covered pedestrian walkways, until permanent street lights are installed. Residents will be able to contact MMC at a designated email posted prominently on the project website (see **Fig.6.1 on page 132**). MMC will also provide regular updates to the Fire Department regarding any detours necessitated by construction.

CONSTRUCTION NOISE IMPACTS

MMC is committed to mitigating construction noise impacts. Increased community sound levels, however, are an inherent consequence of construction activities. When these events are scheduled, advance notice will be provided.

CONSTRUCTION TRAFFIC AND PARKING IMPACTS

Construction Workers

For Short-Term Projects, the number of workers required during the construction will vary with an estimated average daily workforce of 150 during the peak of construction. Jobsite personnel shall park at an off-site parking area and will be shuttled to the construction site. MMC will work with the Construction Management Company to identify an off-site parking location and shuttle service. No personal vehicles will be allowed to park at the project construction site or in the adjacent residential streets. The construction company and its subcontractors shall encourage the use of public transportation by their workers, if available.

Truck Routes and Volumes

Truck routes shall be as far away as possible from residential and other sensitive uses.

MMC may install wayfinding signage at strategic locations identifying no travel zones for construction vehicles. Once at the site, all vehicles will be brought within the fence line and will make every attempt to avoid queueing on public roadways, unless during specific times, as addressed on the site logistics plans.

Construction Staging Areas

Construction staging areas shall be as far away as possible from residential and other sensitive uses.

CONSTRUCTION AIR QUALITY IMPACTS

To reduce emission of fugitive dust and minimize impacts on the local environment, MMC will adhere to a number of strictly enforced mitigation measures. These include the use of wetting agents to control and suppress dust; covering stock piles of soils and trucks transporting debris; managing construction practices to reduce unnecessary transfers of loose materials; periodic cleaning of streets and sidewalks; and, use of wheel wash stations.

IMPACT TO SURROUNDING BUILDINGS AND RESIDENCES

Foundation surveys of surroundings buildings and homes will be completed within a reasonable distance from the anticipated center of construction and in accordance with current regulations. The results of foundational surveys will be shared with the City of Portland and the property owner.

MMC COMMUNITY BENEFITS

MMC provides much to the City of Portland community including employing over 2,000 Portland Residents. These benefits are not only to our adjacent neighbors but also to the residents elsewhere in the City and the state of Maine.

SMOKING POLICY AND RELATED INITIATIVES

MMC, as a health care institution, understands that smoking is an addiction that has harmful effects—effects from directly inhaling nicotine, as well as the effects of second hand smoke. The effects are serious and can be life threatening. In order to advance its vision to make the people in Maine the healthiest in America, MMC, like other businesses in the City of Portland—including the City itself—has instituted a no smoking policy on its premises.

But the hospital also recognizes that addiction is difficult to overcome and the ability to quit smoking is often difficult. That is why MMC offers assistance to its employees, patients and visitors to quit smoking and to reduce and eliminate noxious fumes in the environment. MMC provides free smoking cessation classes to its employees. It offers free nicotine gum to visitors to the hospital in an effort to reduce the desire to smoke. MMC has conducted periodic "walkabouts" in the neighborhood to talk with people about smoking and its health impacts.

Neighborhoods throughout the City all deal with unwanted smoke. MMC has heard the concerns of its neighbors relating to people walking on the public sidewalks in their neighborhoods while smoking.

Whether or not people smoking in MMC's adjacent neighborhoods are affiliated with the Hospital, MMC has taken significant measures to respond in a positive fashion to these concerns. MMC provides education about smoking and resources to assist in quitting (such as providing the hotline telephone number for the Center for Tobacco Independence). The Hospital has taken steps to alleviate the unsightliness of cigarette butts on public streets near its campus. As documented in its MMC Neighborhood Council Meeting minutes of June 23, 2016, MMC has purchased 30 "butt butlers" for use by the City in areas around the MMC main campus. In 2016, MMC and the neighbors collaboratively walked the neighborhood and identified areas for installation of the butt butlers.

At the request of the neighborhood representatives, MMC also modified its smoking policy as follows:

- Limits the distance from entrances within which individuals can smoke from 50 feet to 20 feet;
- Remove MMC Tobacco Free signs installed along the perimeter of the open "South Lot" (Bramhall, Chadwick, Vaughan, and Brackett Sts).
- Letter to employees sent by the MMC CEO and COO regarding these changes and the expectations for employees to abide by them
- MMC has hired a trash removal vendor to collect cigarette butts and trash in the areas surrounding the hospital. This vendor

provides such service between April 1 and first snow, on M, W, and F at 4–6 hours per day.

- MMC has a telephone line dedicated to the receipt of concerns from neighbors regarding MMC related events in their neighborhoods.

MMC is committed to its ongoing efforts to address this public health issue of tobacco use.

NEIGHBORHOOD GARDEN

The St John Valley Neighborhood (SJVNA) requested the use of property owned by MMC at 268-270 Valley St. In an effort to respond to the neighbors, MMC contacted the City for guidance on how it permitted use of public property for such community gardens. MMC fashioned an agreement with SJVNA which mimicked the Agreement used by the City for use of its land by gardening neighbors. As of June 2016 SJVNA was looking into procuring insurance of the same type required by the City.

NEIGHBORHOOD CLEAN UP DAYS

MMC has sponsored neighborhood clean-up days in the past in an effort to partner with its adjacent Neighborhood Associations to beautify the neighborhood. It has supplied lunch, trash bags, gloves and water for those participating.

SNOW BAN PARKING

MMC allows its neighbors the use of its parking garage at 887 Congress St on those days when the City calls a snow ban.

CITY-WIDE BENEFITS

MMC is actively involved in giving back to the City of Portland. The following initiatives provide some examples of the actions undertaken by MMC to give back to the community.

- MMC-Preble St Learning Collaborative: MMC nurse practitioners, primary care residents, medical students, and MMC Homeless Health Partners, have provided services to the most vulnerable underserved people in Portland, allowing them access to quality, barrier-free health care.
- Portland School Based Health Clinics were successful due to the partnership between MMC and Portland Public Health.
- Portland School Athletic Contributions: The Sports Medicine division at MMC's Family Medicine Center provides physical exams and training room support for area school teams, marathons and other sports events.
- MMC RN Health Fairs: MMC RN's routinely hold community health fairs on MMC's time to benefit vulnerable populations. Locations of health fairs include: the Preble St Teen Center, Boys and Girl's Club of Portland, and the Florence House, a permanent shelter for chronically homeless women. The events are frequently accompanied by a collection of supplies.

- Sagamore Village Health Center: MMC has provided staff and support at the Sagamore Health Resource Center, a community-based nurse managed clinic that provided public health, primary care and mental health services to residents. MMC collaboration with the USM School of Nursing and Portland Housing Authority in providing these services. In addition to staff and administrative support, MMC provided direct financial support to the Health Clinic.
- MMC Care Partners: A "safety net" program designed to provide care for those who cannot afford commercial insurance but are not eligible for government programs. CarePartners provides administrative support to help serve the target population, including comprehensive eligibility assessment, care management, and access to low cost or free pharmaceuticals.
- Virology Treatment Center: A resource to patients and physicians caring for patients with HIV / AIDS; it also provides education and conducts clinical trials, including many that otherwise would not be available in the community.
- International Clinic: Provides services and healthcare education to immigrants and refugees from around the world who have settled in Portland.
- Northern New England Poison Center: MMC is the home of the NNEPC. The NNEPC provides a 24x7 hotline and chat service to provide 24x7 consultation with healthcare professionals and the public regarding accidental pediatric or geriatric poisonings, therapeutic errors and adverse effects/ interactions, management of drug- or poison-related suicide attempts and substance abuse misadventures, environmental exposure, food poisoning and other toxic exposures. The Center also provides education for the public and healthcare professionals, including school nurses and law enforcement, assists with preparedness and toxic-surveillance for events including food or water contamination/ tampering, weapons of mass destruction, regional antidote management, and infectious disease.
- Sexual Assault Response Services of Maine (SARSSM): MMC, through its Emergency Department, teaches classes to support SARSSM. Emergency department members present at meetings and conferences in support of these services.
- The Maine Medical Center Research Institute (MMCRI) is the largest hospital-based biomedical research facility in northern New England. Many clinicians author scholarly work or participate in various studies and research activities, and the institute offers a summer

student program. Residents and community members participate in clinical trials to manage and treat diseases and medical conditions, which would otherwise not be available in the community.

- MMC Classroom Facilities at the MMC Dana Center are used by health care mission focused community groups for meetings and educational sessions. Local Chapters of Alcoholics Anonymous, Al-Anon, the National Alliance for the Mentally Ill and Take Off the Pounds Sensibly meet weekly at the Dana Center. HOPE Support Group, Making Strides against Breast Cancer, an Autism Parent Support Group, and Survivors of Suicide are some of the organizations that make use of MMC's facilities on a weekly basis throughout the year.
- MMC's Certified Nursing Assistant (CNA) Program: In affiliation with Portland Adult Education this program has graduated approximately 1,200 graduates to date. Offered 3 times a year at no charge to students, this state-approved 180-hour course incorporates experienced MMC nursing staff as faculty/mentors within classroom presentations, skills labs, and supervised clinical experiences. Clinical nurses and others throughout MMC instruct and mentor these student team members, highlighting MMC's belief in CNAs as integral to the comfort, care, and outcomes of our patients and services. An average of 75 participants attend per session. Near the end of this eleven-week program, students take the state certification examination during the course at no cost to the student.
- Medical Explorers: Provides opportunity for High School students to experience a combination of lecture, experiential learning, and hand-on skills practice. MMC also offers summer internships and opportunities through the school year for High School students to meet, observe and interact with many disciplines in the medical profession.
- Doc for a Day: MMC provides students, chosen from underrepresented minority groups or educationally or economically disadvantaged backgrounds, an overview of what is involved in becoming a physician, and participate in hands on clinical activities in the simulation lab.
- Disaster Preparedness and Emergency Services: MMC is deeply involved in disaster planning at the local and State levels. It is one of three state Regional Resource Centers for Emergency Preparedness, and the hospital has a full-time Director of Emergency preparedness. Additionally, MMC is a member Southern Maine Regional Resource Center for Health Emergency Preparedness, which coordinates all Emergency Preparedness Activities of the Southern 4 Counties of Maine including: York, Cumberland, Sagadahoc and Lincoln. These Public Healthcare Emergency services include

Fig.6.2 Photographs from Community Benefit Events Supported by MMC



The Annual Maine Children's Cancer Program (MCCP) Walk



Tobacco Cessation Program



Park Clean-Up

services and support to other local Hospitals and Medical Centers, Laboratories, Clinics and Ambulatory Centers, Assisted Living and Long Term Care Facilities and Home Health Agencies in the greater Portland Community.

- Financial Support to Community Agencies: MMC supports financially and provides in kind services to various community agencies and

sponsors events throughout the City, including the Heart Walk; American Cancer Society walk, Hospice of Southern Maine, Let's Go Program, Ronald McDonald House, March of Dimes and National Multiple Sclerosis Society. MMC and its employees participate in the United Way, which donations benefit numerous local agencies.

APPENDICES

Appendix A / Construction Management Plan Template

Appendix A: Construction Management Plan Template

*DRAFT 7-31-2017 General Construction
Management Plan Template*

**Construction Management Plan
General Template**
[Applicant and Project Name]

Construction Management Plans shall depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The City's goal for a construction management plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

The Construction Management Plan will be submitted as part of the Site Plan Review and it shall address the construction logistics for a project. The Construction Management Plan shall include the following submissions: 1) a construction management site plan, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories below.

A. Construction Management Principles

The following narrative provides an overview of the construction management principles that the [Applicant and Contractor] has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

B. Development Review of Construction Management Plan

[Applicant and Contractor] shall submit a construction management plan that provides a comprehensive logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. The plan minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process. The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Prior to scheduling a preconstruction meeting and the issuance of any city required permits, [Applicant and Contractor] shall meet all of the requirements contained in Section 14-530. Development review fees and post approval requirements and 14-532. General requirements and enforcement of Portland's Land Use Code.

Other permits, as applicable, include

1. **Street Opening and Street Occupancy Permits:** Construction activity in the public right-of-way are controlled by Chapter 25 and sewer and stormwater system connections are controlled by Chapters 24 and 32 of the Land Use Code. All required permits shall be obtained through the Department of Public Works and the requests shall conform with the approved construction management plan.

2. **Blasting:** Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
3. **Building Code:** Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

[Applicant and Contractor] will work diligently to implement a communication strategy as outlined below. The communication strategy is intended to ensure that all construction operations are performed in accordance with all agreements, ordinances and special permits applicable to this project. The Construction Manager will work closely with adjacent abutters, businesses and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. The final construction management plan shall provide for the following:

1. Contact Person and contact information for the [applicant and contractor] and who is available 24 hours
2. Construction Signage posted on the site with Contact Information for Contractor
3. Describe any additional communication strategies
4. All construction site signage is temporary and shall be removed at project completion.

E. Construction Schedule

1. The contractor shall submit a schedule or time line for the construction project, including any Phasing.
2. Hours of Construction. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit ([Attachment 1](#)) and Section 25-129. Noise, dust and debris ([Attachment 2](#)).
3. Extended Hours or Night Work: Pursuant to Section 17-18, this section not apply to emergency utility work or "Situations where the public works authority or the office of building inspections determines that the construction activity is of a unique character which cannot reasonably be completed or performed during the permitted hours and which is not of a recurring nature, provided that prior to engaging in such activity the contractor or his representatives gives notice of the time and scope of such proposed activity, the notice to be given in a manner approved by the public works authority."
4. Material Deliveries: Schedule and designated location for delivery of materials and boxed goods.

F. Security & Public Safety

1. The Construction Management Plan will depict all proposed fencing or other barriers and access gates (with Knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations*.
3. Fire Safety Program. An overall construction of demolition fire safety program shall be developed. Essential items to be emphasized include the following:
 - o Good Housekeeping
 - o On-site security

- Installation of new fire protection systems as construction progresses
 - Preservation of existing systems during demolition
 - Organization and training of an on-site fire brigade
 - Development of a pre-fire plan with the local fire department
 - Rapid communication
 - Consideration of special hazards resulting from previous occupancies
 - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
 5. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.
2. Sewer and Stormwater: Sewer and stormwater water system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.
3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and or collector streets are required to submit a satisfactory "maintenance of traffic" (MOT) plan prior to any site plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- In extreme situations, flaggers may be required.

- Police detail is required at lighted intersections and may be requested by the City's transportation engineer or his designee.

All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

The final Construction Management Plan will address maintaining the site in a safe condition and will include the following:

1. Regular trash and debris removal
2. Street cleaning and damage controls
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).
4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris (Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.
 - 1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice
 - 2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or site lines with the piles of snow.
 - 3) Clear all walks & ramps with the work zone
 - 4) Sand or Salt as needed
 - 5) Clear all basin or drainage to help snow melt
 - 6) This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. The [contractor] shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.
2. The [contractor] shall maintain all tree and landscaping preservation measures as depicted on the landscaping plan (Exhibit) within the area of construction.
3. The storage of materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Construction Management Plan shall depict location of the material staging areas, the location on onsite temporary construction trailers, the location on onsite truck delivery holding areas, the location onsite truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. An open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The delivery holding area shall be shown on the plan and shall not be blocked during construction. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of the trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets.
3. Delivery Truck Holding Areas Off-Site: In the event that adequate on-site area for holding of trucks is not available, an off-site marshalling area will be utilized for trucking. The designated off-site location will be identified in the construction management plan.

K. Parking During Construction

1. Construction Parking: Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided. The parking arrangements shall be included in the construction management plan.
2. Parking: Where existing facilities are remaining in operation during construction, the construction management plan shall identify how the parking for employees and others shall be managed.
3. Truck Routes and Volumes: The Construction Management Plan shall address the designated truck routes and expected truck volumes.

L. Special Measures as Necessary

For construction work that will take place over a long period (e.g. 12 months or more), involve major demolition/ deep excavation/ piling and/or special construction techniques, or are located near sensitive uses (e.g. medical care facilities, schools), the Construction Management Plan should provide details and demonstrate that all appropriate special measures have been taken to avoid, minimize, or possibly compensate for potential impacts. This may include taking baseline measurements before construction, such as arranging to

photograph the foundations of nearby properties upon consent of the owners, in order to assess any future impacts of vibration, noise, etc.

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