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Abstract

Downtown Portland, Oregon is divided into two sections because of the sunken Interstate 405 (I-405). When built in 1965, I-405 eliminated 35 blocks of downtown Portland. Although I-405 runs directly through the downtown, it is sunken below street level and the street pattern of downtown is not affected. Between the street crossings, there are a series of block-size spaces open to I-405 directly below. These physical open spaces provide the potential for an Urban Park Corridor. The Urban Park Corridor will resolve the economic and social problems caused by the I-405 physical barrier with residential, commercial and recreational spaces.

The purpose of our investigation was to explore what role such a development would play in the larger environments of the adjacent neighborhoods and overall city context. The issues of scale, density, context and architectural and landscape architectural characters were the key elements from which our project was generated, designed and developed.
Section through the West Hills, downtown Portland and the Willamette River
Introduction

In 1965, under the National Public Infrastructure Project, Interstate 405 was carved out of downtown Portland, Oregon. The building of I-405 resulted in a loss of 35 city blocks in the downtown. Although I-405 is sunken to lessen its visual impact, the psychological impact of I-405 is evident. The existing buildings adjacent to I-405 have turned their backs to it and results in an untapped zero space.

Zero space is defined as a reclaimed or recovered building space that previously did not exist due to a change in conventional thinking or the actual reclamation of land. The term implies a space, because of its previous nonexistence, does not have the same qualities that would be associated with a traditional building site. The zero space in this investigation is the space above the Interstate, which due to conventional thinking was not previously considered as a buildable area.

The growth of Portland’s population in the 1980s first saw growth in the suburbs, then in the downtown. Portland is aware of the importance of downtown development and urban open spaces.

Mayor Vera Katz’s April 1998 State of City Address mentioned the possibility of capping I-405. The Mayor’s goal in capping I-405 is to make Portland a livable urban place. She acknowledges the tricky engineering and high costs involved with this Interstate project, but reiterates that the rewards will be terrific. Mayor Vera Katz’s capping of I-405 idea is increasingly amiable because the Urban Growth Boundary (UGB) has increased the value of land in the downtown and the agricultural land will be spared with smart downtown redevelopment.
Panoramic of downtown Portland with Mount Hood in the background.
The I-405 Capping Feasibility Study was adopted by the ASLA (American Society of Landscape Architects) and Landscape Architecture Foundation to enhance livability in Oregon. The study focused on four areas of consideration: aesthetics, environment, economy and community. The completion of this study coincided with the ASLA National Conference in Portland, October 1998. Members of the Portland community were heavily involved. The purpose of the plan is to reconnect the downtown neighborhoods. The goals of the ASLA were to:

1. Achieve metro 2000 plan and limit expansion of urban growth boundary
2. Connect city and regional efforts to create quality jobs, improve public safety, provide transportation choices, fund education, protect the environment and provide affordable housing.
4. Focus any development outside central city to improve neighborhoods main streets, town centers and transit corridors.
5. Preserve unique character of city neighborhoods and protect single-family neighborhoods.
Panoramic of the Rose Quarter, Oregon Convention Center and the Willamette River.
**Definition of Problem**

The city of Portland, Oregon, proposed to cap 1.6 miles of the sunken I-405 corridor running through the downtown. The capped portion will become a street-level urban park corridor uniting the currently divided downtown. It defines the region's livability and quality of life through aesthetics, the environment, the economy and the community. Residential, commercial and recreational spaces as well as parking and open space within the Urban Park Corridor define Portland's quality of life. Architectural and landscape architectural urban design spaces will be developed in conjunction with Dustin Eggink, an architecture thesis student.

The goal of this project is to design an urban park corridor for Portland residents through a 26-block section of downtown above the existing I-405 that will enhance, unite and benefit the city of Portland, Oregon economically, environmentally and socially.
One of the block sections above I-405 that will be capped.
Background

Earlier in this century, Great American cities were defined by their population; their physical size; the size of their dot on the map. As we try to enhance the American standard of living today, we have to refocus our goals. Low-density sprawl and the automobile are not efficient ways of life. Our cities can no longer afford to be spread all over the surrounding countryside and be dominated by the automobile. We must reconsider our automobile lifestyle and begin smart urban planning. Central Business Districts (CBDs) must be recognized and rejuvenated with urban planning tactics that address urban sprawl and the automobile.

Urban sprawl versus smart urban downtown planning

The American dream of the 1950s dictated that a reasonable American citizen could not be happy unless they had their own isolated patch of land. America was infinite, large enough to support this chronic ideal; for a while, at least, it was comfortably large enough. Today American citizens and designers must refocus the American dream. The past ideal is no longer in sync with today’s culture. Urban sprawl had led to the indefinintion of cities, increased pollution, CBD decline and costly by-consequences. Large American cities became even larger with population increase and essentially became several small cities. The original CBD hollowed out and no longer functioned as a viable part of the city fabric. Both the environment and American citizens have suffered because of our traditional ideal lifestyle.

The key to adjusting our current lifestyle needs to accommodate the new ideal lifestyle is smart planning through design. Smart planning begins with the revitalization of the CBD. Renovating and in-filling play major roles in CBD revitalization. This concept will bring people back to the heart of the city, which means life is brought back to the city. Several things must occur to encourage continues populating of the city. The first thing is that the scale must be brought back from automobile-oriented to the pedestrian scale. Neighborhoods need to be diverse both in uses and in population. Public spaces should be redesignated.
The American Dream of the 1950s was to have a house on a large plot of isolated land. Today we have three car garages, cold facades and large grass yards.
The **new city ideals** are: preserving open space, supporting transit, reducing automobile use, balancing CBD growth with sprawl growth and setting logical urban growth limit lines. This new ideal for a city uses smart planning to encourage rehabilitation in the CBD and therefore, a resurrection of the original city.

Portland, Oregon is an exemplar example of a city implementing smart planning. Portland has downtown open spaces, a healthy extensive transit system that reduces auto use, equal growth in the CBD and surrounding neighborhoods and an Urban Growth Boundary (UGB). This project intensifies the ideals of Portland by reinforcing the urban focus with mixed-use in-fill buildings and open space.

**Transportation/ interstate needs→problems→solutions (capping)**

Another cause of and result from urban sprawl is the heavy use of the automobile. Every family with their own patch of land also has their own car. Commuting into the CBD from the suburbs caused the CBD to essentially augment offices and parking lots and structures. Busy, high-pace roads become the intermediate areas between urban sprawl and the CBD. These interstates, highways and major roads are major hazards for the pedestrian. The CBD becomes unusable by pedestrians and sterile. Small businesses and retail are not encouraged to reside along these major transports because of the lack of pedestrians and the fact that automobiles traveling on these "express roads" have one goal in mind: to move as quickly and efficiently as possible between two points without stopping. Automobiles just go. They do not drive and pause to shop and drive again. The major transports also act as barriers within the city. New districts created from major transports become separate entities in themselves. The city fabric no longer works as one system. It is forced into subordinate areas unable to compete with the other districts.

The automobile' influence crowds out the pedestrian, creating the division of Portland into districts and puncturing the city systems. Crossing the major transports from one district to another is a hassle for pedestrians. The automobile therefore, is vacant and devoid of activity. The outdoor environment turns unsafe because of the lack of community unity. No nightlife exists and the city
Besides urban sprawl, interstates, highways and major roads to and in the city are major hazards for the pedestrian and the integrity of the city.
environment becomes sterile and harsh to the pedestrian. The suburbs become a newly tapped resource and carry people out of the city. The CBD becomes divided and a further separation between the pedestrian and the city occurs. Interstate 405 cuts through the downtown and creates a pedestrian barrier. As the district map shows on page 21, each identified district in Portland exists because of a main non-pedestrian-friendly area on at least one border. Distinct districts on either side of I-405 were created by the Interstate. This project submerges the dividing effects of I-405 and the automobile and focuses on the pedestrian experience.
Major transportation routes cut through cities and create barriers within the city. Portland has a major barrier, I-405. This project took the initiative to amend that problem.
Context
Portland, Oregon is a major city of about 1.5 million people. It straddles the Willamette River, dividing downtown into east and west sections, about one hundred miles upstream of the Pacific coast. Interstate 5 (I-5) is a major transportation route running north-south along the east side of the Willamette River. I-405 is an extension loop of I-5 that runs through and serves as the primary transportation vein for downtown Portland. I-405 is sunken below street level, so the street pattern of downtown is not affected. Between the street crossings, there are a series of block-size spaces that are open to I-405 directly below. These block-size open spaces, the site, run for about 1.6 miles through warehouses, offices, residences, restaurants and Portland State University. State highway 26 joins I-405 from the west about halfway through the site and embodies an extensive system of expressway ramps.

Note: The site is highlighted in red on the adjacent map.
Districts

There are 9 main districts within the city of Portland. Each district has distinct characteristics that set it apart from the other districts in the city and all districts are bounded on at least one side by a major vehicular path or the Willamette River. These districts are: Northeast, Rose Quarter, East Central, West hills, Goose Hollow, Northwest, River, Old Town and Downtown.

The Northeast (1) district is mostly industrial.

- 49% industrial
- 20% vacant land or buildings

In the Rose Quarter (2) district, the important landmarks include the Lloyd Center, the Oregon Convention Center and Rose Quarter Coliseum. To accompany these large entertainment centers, there are abundant hotels and motels in this area also. The MAX line runs east-west between the downtown and the Northeast residential district.

- 41% general office, event, entertainment activities, hotels/ motels
- 29% surface and structure parking

The East Central (3) district is mostly residential with a few high schools and I-5 looming along the shore.

- 51% industrial
- 15% commercial
- 6% residential

The West Hills (4) district contains student housing, single-family detached housing, some multiple-family housing, parks and open space. The terrain is very steep and heavily vegetated.

The Goose Hollow (5) district features Lincoln High School, Civic Stadium, MAX line and entertainment places such as the theatre and bars near Burnside.

- 34% commercial [50% entertainment and clubs]
- 24% residential

The Northwest (6) district is primarily residential. A well known section of the Northwest is 23rd Street where upscale restaurants, bars and shops reside.

The River (7) district includes the North Park Blocks along the very eastern edge. The rest of the district is industrial.

- 75% industrial (25% distribution, 25% railroad activity)

Chinatown, Union Station and the Greyhound Bus Depot are the major features of the Old Town (8) district.

The Downtown (9) district contains the most important features of all the districts. The government cluster (City Hall, the Portland Building), Portland State
University, Waterfront Park, MAX line and the South Park Blocks. Other major features include the Saturday Market, fountains, plazas and an abundance of parking lots and structures.

- 50% commercial
- 13% parking lots, structures, personal vehicle use
- 12% residential
- 10% institutions
- 4% industrial and open space
- 6% vacant
The most successful cities have substantial pedestrian-oriented downtowns with public transportation extending into surrounding residential communities. Portland, Oregon is a leading example of a city that takes initiative in urban development planning. Portland is an excellent example of a city that optimizes planning to its advantage because of its Urban Growth Boundary, public transportation and Park Blocks.

The **Urban Growth Boundary**, or UGB, is a major factor of Portland’s development. Developed in 1972 as a state-mandated program, the UGB growth in the metro region, controls urban sprawl, easily accommodates public transportation from the outer circumference to the downtown center and creates high premium space in downtown.

**MAX**, the Light Rail public transportation in Portland, is an amenity the City plans to expand upon. The MAX currently provides connections between the Convention Center/Rose Quarter district on the east side of the Willamette, downtown and Goose Hollow, Washington Park and Beaverton in the West Hills.

The **Park Blocks** were established when Portland was founded in the early 19th century. Land was set aside for these Park Blocks, but 8 out of 25 blocks fell into private owners’ hands and were lost. The importance of open space in the City was as important in the 19th century as it is today. The Park Blocks today continue to be one of the City’s finest assets. In 1988 Central City Plan, the Bureau of Planning placed a value on the worth of the Park Blocks and proposed to create more. Waterfront Park along the Willamette River exemplifies Portland’s movement to recover open space in the downtown. The Park creates a green buffer between the river and downtown. The existing I-5 on the eastern bank of the Willamette was moved from its original location on the west bank of the River to accommodate Waterfront Park and serve the downtown.

A recently acquired possible amenity to Portland is the capping of a sunken Interstate that runs directly through the downtown. When Interstate 405 was built in 1965, it was built as a direct access to the downtown. The Interstate was carved into the existing downtown, eliminated 35 city blocks and essentially cut down-
The South Park Blocks on Portland State University campus.
town Portland in half. Although the street grid pattern is uninterrupted by sunken I-405, the adjacent buildings have turned their backsides toward the Interstate and created a totally unpedestrian-friendly environment. The change in existing city fabric functions caused an economic, social and aesthetic catastrophe within the heart of the city.

The open spaces directly above the Interstate render an opportunity for previously inconceivable buildable space. This means that about 26 city blocks will be capped and built upon, creating prime downtown real estate. Not many cities have the opportunity for developing a 26-city block section of ground in their downtown and the possibilities are limitless with regard to the context.
Project Requirements

The main goal of this project is to design an urban park corridor for Portland residents though a 26 block section of downtown above the existing I-405 that will enhance, unite and benefit the city of Portland, Oregon economically, environmentally and socially. In order to accomplish this main goal, several goals were established for this project. These goals were to:

**Unite the city of Portland through development on I-405**

- Partially in-fill the site, leaving some open framework areas of vegetation or directly open to the interstate below
- Use the physical characteristics of each section of the I-405 as a unique entity of design and as a connection with the context
- Emphasize the MAX line running through or across the site

**Create an urban park that meets the needs of Portland residents and enhances their quality of life through design**

- Create human-scale environments
- Focus on the pedestrian as priority
- Use the existing city fabric functions as a determinant for open space and proposed building uses

**Create a unique identity for Portland**

- Establish strong design forms that intermix with the existing city fabric, yet become a unique positive entity in themselves
- Create an urban park corridor that establishes a visual identity for Portland through fresh and innovative design
Client/User

Mayor Vera Katz and the citizens of Portland would like to see the following elements included in the I-405 capping:

- Small-scale developments
- Enhanced neighborhood amenities
- Parks
- Parking
- Retail shops
- Mixed commercial use
- Pedestrian byways and enhancements
- Higher education institutions
- High-tech manufacturing campus

The site will be prime real estate for whatever is wanted and the client’s needs are all possible.
Design Process
Site Inventory...Figure Foreground

This diagram shows the relationship of open space to buildings with the open space being black. In the North Burnside Residential End the industrial buildings that are being converted into residential occupy the entire square city block. The single and multiple family housing on the west side of I-405 in the northern end have more open spaces between buildings, similar to the office and retail in the middle area. This means that the buildings in the I-405 block should incorporate the average of the two existing context densities in order to successfully compromise the two sides.

In the MAX Plaza Commercial Area the presence of Lincoln High School is evident with the large setback from the street and the space required for the track and field area. The remainder of the blocks have an almost equal amount of open space to building space. The grid is still a strong pattern of the landscape.

In the Portland State I-405 Campus Extension the low-density of the West Hills exemplifies the steep topography and single-family housing. The scattered buildings with a lot of open space represent a steep ungridable landscape. The connection between these two differing densities in the I-405 space will be a unique design opportunity for density. The Portland State University campus modifies some of the square blocks, but otherwise the grid squares are very prevalent.

The site is a continuous open space, completely void in the density of the city.

Note: The continuing street grid across I-405 is visible. This means that the two sides of the city are still connected by weak vehicular lines.
Site Inventory...Important Components

**Burnside** (horizontal black arrow)
This major east-west street divides Portland north and south, as exemplified by the rotation of the city grid. The intersection of Burnside and I-405 (on street level) is a major concern regarding pedestrian movement.

**MAX Rail** (black dotted line)
Public transportation runs about 10-15 linear miles from beyond the Rose District in the northeast to Beaverton in the West Hills. The rail plays a major role in the movement of people. The future expansion of this rail will transport Portlanders form the Urban Growth Boundary to the city center.

**State Highway 26** (split black arrow)
Major vehicular connection to I-405 via tunnels, ramps and curves.

**Lincoln High School** and **Portland State University** (yellow)
A large tract of land in a mixed residential/commercial neighborhood. One of two open green areas abutting I-405, the other being Portland State university campus. The campus is a dozen city block area with buildings and urban open spaces intermixed in an unconventional city block pattern.

**Union Station and Greyhound Bus Depot** (orange)
Historically important site and transportation hub on the Willamette River.

**Urban parks and plazas** (green)
Scattered throughout the city. Waterfront Park has green open space, wide walking paths and benches. The historically important Park Blocks run for four blocks north of Burnside and 11 blocks north of I-405. Pioneer Place is a block-size urban plaza.

**Civic Stadium** and **Government Buildings** (blue)
Location of Portland’s minor league baseball team, concerts and other public events.
Site Analysis

MAX Rail
The intersection of I-405 and the MAX is a very significant area because of the major transportation of people through the city. The MAX line also physically connects the Civic Stadium, theatre, Pioneer Place and Waterfront Park. The node at I-405 and the MAX is also three blocks from Burnside, where several bars, theaters and entertainment areas currently exist.

Burnside
This street connects the Willamette River with the far West Hills. Traffic moves in both directions and through a major entertainment district of Portland. Several bars, a theater, music stores, a ballroom and restaurants reside around the node of I-405 and Burnside. The vacancy in the center of that node naturally becomes a hub of the entertainment district with a movie theater, sculptural emphasis piece and plaza.

State Highway 26
The view of Portland after emerging from the 26 tunnel is an asset that needs to be maximized. This intersection is a major difficulty area because of the abundance of ramps and road levels. A pedestrian crossing of some sort is a necessity in this area. The existing vegetation is magnificent.

Portland State University
There is an unfathomable opportunity to expand the Portland State University Campus over I-405. Until now, the campus was landlocked and they wished to add another major of study and new campus buildings as written in the client's needs list.

Park Blocks
Historically significant and continue to be so today. Some citizens would like to see another set of Park Blocks made out of the I-405 capping. The juncture of I-405 and the end of the South Park Blocks signifies the actual end of the city. The landscape then moves up into the steep West Hills.
Lincoln High School
The setback of this high school allows for a formal entrance to the school off of street level I-405. The zero space above I-405 in front of Lincoln High School is a three-block area and the pedestrian crossing is a major concern.

Civic Stadium, Pioneer Place
The MAX line connects these civic elements of Portland with the remainder of Portland. The civic stadium hosts thousands of people in events such as baseball games and concerts. Pioneer Place is able to hold hundreds of people at any given moment. Street performers, vendors, people watching and other social events occur constantly in Pioneer Place. Riverfront Park is at the corner of the MAX line and the Willamette River.

Glisan
I-405 surfaces and ramps up over the Willamette River after the Glisan street crossing so that is the northern terminus for the project.
Conceptual Plan

The site is divided into 3 main areas:
- North Burnside Residential
- MAX Plaza Commercial
- Portland State I-405 Campus Extension
Program
North Burnside Residential

Residential (1)
The main users are couples, singles and families. It is active all day with peak
hours being 8-9am and 5-6pm. Nights will be quiet. The main environmental
relationships of this residential are compromised of residential on either side,
an east-west crosswalk and a central plaza.

Entertainment (2)

Parking (3)
This parking will facilitate some of the residential. However, it is mainly for
users of the entertainment area at Burnside.
MAX Plaza Commercial

Entertainment (1)
This consists of bars, restaurants, cinemas and theaters. All the citizens of Portland are the users. This is an active area and will be active all day and night with the peak hours being the evening and nighttime. The environmental relationships include existing bars, civic stadium, theatre, Burnside, a small street leading to the MAX Plaza, parking and residential.

Commercial (2)
Commercial consists of grocery stores, retail, restaurants, diners and delis.

Open space and Public Amenities (3)

MAX line Plaza (4)
The MAX Plaza is the central focus of this project. It caters to all users, especially the MAX line riders. The plaza will be active all day and night. Peak hours could occur during planned and unplanned events and during break times. The plaza is just south of the entertainment area. Pioneer Place, Civic Stadium and a Live Theatre are all nearby and connected with the MAX line. Lincoln High School is also a few blocks away.

High school/ office building plaza (5)
This area will be used by students, office workers and generally everyone during break times and special events. Peak hours would occur from 7-9 am and 3-6 pm. Lincoln High School, residential and existing offices are adjacent to these blocks.

Parking (6)

Residential (7)
This residential is for everyone, but might cater to Portland State University students. The active times are all day, slowing down at night. Environmental relationships to this site include adjacent residential, offices and Portland State University.

Pedestrian Crossing (8)
Portland State I-405 Campus Extension

Pedestrian Crossing (1)
This pedestrian walk will be used by everyone, people moving between two points and others enjoying the panoramic of downtown Portland. The crossing will be used all day with some observers at night to enjoy the view. The environmental relationships are adjacent residential, Portland State University, existing and proposed parking. The crossing is functional for pedestrians, but it also functions as artistic emphasis for drivers on 26.

Campus Buildings (2)
These are the much needed extension of Portland State University. The University wanted to add an Informatics College to their academics.

Campus Housing (3)
Portland State University students, professors and visitors use this housing. The housing has peak activity hours in between classes, but it is active all day and night. The environmental relationships of this housing are the South Park Blocks, Portland State University campus and existing student housing in the West Hills.

Campus Retail (4)
This consists of groceries, convenience stores, bars and restaurants. The main users are University students.