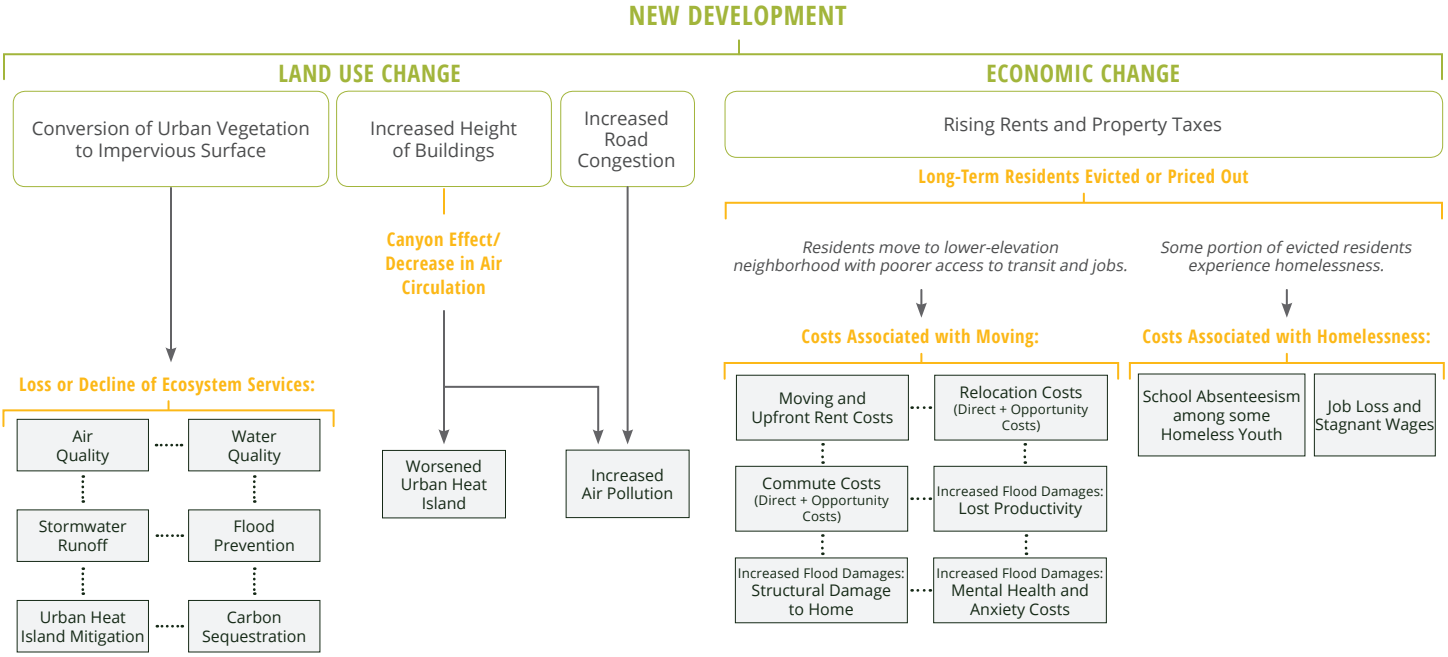
MAGIC CITY INNOVATION DISTRICT

A SNAPSHOT OF POTENTIAL ENVIRONMENTAL AND SOCIAL COSTS OF THE PROPOSED LITTLE HAITI DEVELOPMENT

COMMUNITY JUSTICE PROJECT | MIAMI, FLORIDA

The Magic City Innovation District ("Magic City") is a seventeen-acre development slated to be built in the Little Haiti neighborhood of Miami. While the development may attract additional investment and benefits for new residents and businesses that move to the area, there is growing concern about the potential negative environmental and social impacts of the project, including economic displacement of residents who have historically resided and worked in Little Haiti, the majority of whom are low-income families of color. Without taking the time to establish a complete picture of the project's environmental and social costs and benefits, Magic City Innovation District runs the risk of perpetuating economic and racial inequities across Miami communities and contributing to unsustainable development practices that threaten Miami's long-term resilience.



AS THE IMPACTS OF SEA-LEVEL RISE INTENSIFY AND DEVELOPERS LOOK TO HIGHER GROUND TO BUILD NEW PROJECTS, MIAMI'S LOW-INCOME COMMUNITIES OF COLOR ARE AT RISK OF DISPLACEMENT, PARTICULARLY TO CLIMATE-VULNERABLE NEIGHBORHOODS.

LINKING DEVELOPMENT WITH ECONOMIC, SOCIAL, AND ENVIRONMENTAL COSTS

Large, mixed-use development projects such as the Magic City project can generate significant changes to land use and local economic conditions. Land-use changes, such as converting existing trees and lawn to sidewalks and parking lots, replacing one- or two- story buildings with multi-floor buildings, and increasing residential density, all generate a range of environmental impacts. Economic changes such as rising property costs can lead to economic displacement of lower-income households, which can result in long-lasting financial costs for households. As the impacts of sea-level rise intensify and developers look to higher ground to build projects, Miami's low-income communities of color are at risk of displacement, particularly to climate-vulnerable neighborhoods.

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ENVIRONMENTAL COSTS OF **PROPOSED LAND USE CHANGES**

A review of project planning documents and key literature suggests that the Magic City project may generate environmental impacts. Potential environmental impacts for urban development projects such as Magic City include loss of pervious surface and associated impacts to ecosystem services; impacts of proposed height of new buildings and their effect on local air circulation (i.e. "canyoning effects") and building efficiency, and potential impacts of traffic and congestion on local air quality. **A full review of the environmental costs and benefits of this project is warranted.**

THE VALUE OF **URBAN VEGETATION**

Urban vegetation such as trees, grass, and soil, serve as an important part of a city's stormwater management system[1], especially in a city such as Miami with intensifying precipitation due to climate change.[2] Urban vegetation intercepts, infiltrates, and naturally filters rain water, resulting in less stormwater runoff downstream and improved water quality.[3] In addition to generating significant stormwater management benefits, urban vegetation has multiple ancillary benefits, including air quality purification, urban heat island effect mitigation, urban habitat provision, aesthetic value, positive mental health impacts, and property value uplift.[4]

Any net loss of urban vegetation resulting from the Magic City project would generate tangible costs to local residents and local government alike.

$0
Value per acre of **pavement** per year.

$223
Value per acre of **grass** per year.

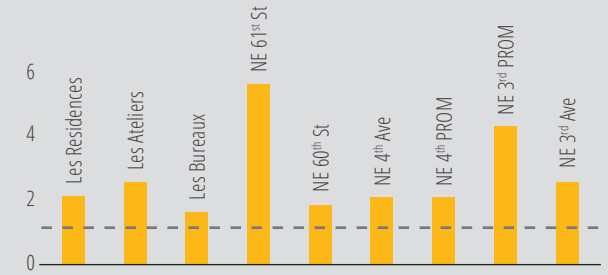
$487
Value per acre of **trees** per year.

BUILDING HEIGHT, **ENERGY EFFICIENCY,** AND **CANYON EFFECTS**

While the tall buildings that come with density have known environmental benefits, tall buildings can also generate negative environmental impacts. For example, while tall buildings can be built to be energy-efficient, many tall buildings generate inefficiencies due to materials used (e.g., glass). Tall buildings also can create what is known as the urban canyon effect, which occurs when a street has tall buildings on either side and air circulation at the street level is reduced due to blocked wind. The canyon effect results in stagnation and reduced air quality as well as worsened urban heat island effect. The aspect ratio, or the height of buildings divided by the width between buildings, is a useful indicator of the canyon effect. The canyon effect can occur on street segments with an aspect ratio greater than 1.[2]

The Magic City project will dramatically change Little Haiti's skyscape, with buildings up to 25 stories tall. While the developer plans to pursue LEED certification for the project's buildings, additional details on what level of LEED certification should be made explicit. **The estimated aspect ratio for many road segments throughout the project area appears to be greater than 1, suggesting the potential for canyon effects and reduced air quality.**

ESTIMATED ASPECT RATIO FOR MAGIC CITY SAP ROAD SEGMENTS



THE COST OF **CONGESTION**

Congestion occurs when the number of vehicles transiting a roadway reaches maximum capacity and results in slower speeds and idling. There are multiple negative impacts of congestion, including economic impacts such wasted fuel and wasted time, and environmental and social impacts such as increased tailpipe emissions and air pollution.[8]

It is estimated that the Magic City project will add approximately 9,400+ new vehicle trips to the neighborhood per day, based on the planned number of parking spots and the likely impact of ride share vehicles such as Lyft/Uber. According to the Kimley Horn Traffic Impact Assessment, congestion is projected to worsen for 16% of the 56 road segments within the project area. Some road segments will see average speeds decline from >17 mph to >13mph, or >13mph to >10mph. Even one mile of driving can generate tailpipe emissions with measurable health costs.

TAILPIPE POLLUTANT	EMISSION (GRAMS) PER MILE	HEALTH COST PER GRAM OF POLLUTANT	TOTAL HEALTH COSTS PER MILE DRIVEN BY 9406 NEW CARS
VOC	1.304	$ 0.003	$ 40.00
NOx	0.693	$ 0.013	$ 83.00
PM2.5	0.012	$ 0.584	$ 66.00
SO2	0.002	$ 0.019	$ 0.35
TOTAL			$189.35

See technical summary for emissions and costs data sources.

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4 Center for Neighborhood Technology. 2010. The value of green infrastructure: a guide to recognizing its economic, environmental, and social benefits.
5 Navarro, M., 2012. City's law tracking energy use yields some surprises. New York Times.
6 Condon, P., 2012. A city that runs on itself. United Nations University. https://ourworld.unu.edu/en/a-city-that-runs-on-itself
7 Vardoulakis, S., Fisher, B., Pericleous, K., Gonzalez-Flesca, N., 2003. Modelling air quality in street canyons: A review. Atmospheric Environment 37, 155–182.

SOCIAL COSTS OF DECLINING AFFORDABILITY AND ECONOMIC DISPLACEMENT

With speculation on the rise, the Little Haiti neighborhood has seen radical changes over the past several years. Low- and moderate-income residents are already leaving the neighborhood and moving to areas as far away as North Miami and North Miami Beach, which see higher risk of flooding and have poorer access to transit and jobs. While the specific impacts of the Magic City project on displacement is uncertain, the link between market-rate housing development and displacement of neighboring low-income residents is well documented. **The costs of displacement are measurable and should be taken into consideration when weighing the costs and benefits of new development projects.**

THE COST OF DISPLACEMENT FOR LITTLE HAITI HOUSEHOLDS

Household income and housing-cost burden (spending >30% of income on housing costs) is a useful indicator of displacement risk. Using this indicator, it can be assumed that 3000+ Little Haiti households will face risk of displacement in the coming years, especially if new market-rate housing such as the Magic City project continue to be built. Once displaced, a household faces additional costs for many years into the future.

The additional cost of living in a new neighborhood amounts to 10% of the average income for a Little Haiti household.

$22,000*

Total costs over ten years, for one household.

DISPLACEMENT COSTS TO A SINGLE AT-RISK LITTLE HAITI HOUSEHOLD

- Total upfront cost, in the first year: $5,200
- Total annual cost, after first year: $2,500

$68 million*

Total costs over ten years after moving, for all at-risk households.

DISPLACEMENT COSTS TO ALL AT-RISK LITTLE HAITI HOUSEHOLDS

- Total upfront cost, in the first year: $16 million
- Total annual cost, after first year: $8 million

** Net present value of costs cover ten years, using a 7% discount rate.*

WHAT HAPPENS WHEN A HOUSEHOLD IS DISPLACED?

The impacts of displacement are well documented − everything from upfront relocation costs, to increased commuting costs, to to the cost of increased flood risk. Using publicly available datasets, the average financial cost of displacement to a Little Haiti household can be estimated.

$2,705

Relocation costs for one Little Haiti household during displacement.

UPFRONT RELOCATION COSTS

The cost of relocating to a new home is a significant and immediate burden.[8] Not only do households incur the direct costs of moving but may also face opportunity costs and disruption to work associated with finding temporary or permanent housing.[9] Additional costs include potential loss of security deposit and the cost of dealing with eviction procedures.

$2,250

Commute-related costs for one Little Haiti household after displacement.

COMMUTING COSTS

When facing displacement, households have a high likelihood of moving to a new neighborhood or municipality. Displaced households' new neighborhoods on average have fewer job opportunities[9, 10] and require longer and more costly commutes.[8] For example, low-income households living in North Miami and North Miami Beach generally have longer commutes than low-income households in Little Haiti, according to public data.

$256

Social cost of flooding for a displaced Little Haiti household, based on flood risk in new neighborhood.

FLOODING RELATED COSTS

Displaced households often move to areas with poorer environmental conditions.[11] In Miami, higher-elevation neighborhoods are being gentrified as lower elevation neighborhoods with higher flood risk are less and less desirable.[12] Flooding events not only damage property − they also generate significant social cost, including mental anxiety and disruption to work productivity.[13]

8 Causa Justa Just Cause. 2014. Development Without Displacement: Resisting Gentrification in the Bay Area.
9 Marcus J. and Zuk, M. 2017. Displacement in San Mateo County, California: Consequences for Housing, Neighborhoods, Quality of Life, and Health. Berkeley Institute of Government Studies.
10 Atkinson, R. et al. 2011. Gentrification and Displacement: the Household Impacts of Neighborhood Change. Australian Housing and Urban Research Institute.
11 Marcus, J., Zuk, M., 2017. Displacement in San Mateo County, California: Consequences for housing, neighborhoods, quality of life, and health. IGS Research Brief.
12 Keenan, J.M., Hill, T., Gumber, A., 2018. Climate gentrification: from theory to empiricism in Miami-Dade County, Florida. Environmental Research Letters 13(5).
13 FEMA, 2019. Coping with disaster. https://www.fema.gov/coping-disaster

ALTERNATIVE DISPLACEMENT SCENARIOS AND ADDITIONAL CONSIDERATIONS

ALTERNATIVE DISPLACEMENT SCENARIOS The estimated $68 million in displacement-related costs for low-income Little Haiti households is based on a single displacement scenario involving renter households who successfully find new housing and either maintain their existing jobs or find new jobs. There are multiple displacement scenarios and associated costs that should also be considered.

$10,824

Estimated cost of lost wages and school absenteeism for one Little Haiti household experiencing homelessness after displacement.

HOMELESSNESS AND SCHOOL ABSENTEEISM

In some cases, displaced households may experience periods of homelessness.[14] Families experiencing housing insecurity and homelessness are more likely to lose their jobs than their housing-secure counterparts,[15] resulting not only in temporary loss of wages but also long-term barriers to finding employment due to stigma associated with involuntary job loss.[16] Homeless youth are also more likely to experience chronic school absenteeism.[17,18]

$7,916

Estimated cost of moving twice within one year of initial displacement, for one Little Haiti household.

RECURRING RELOCATION

Displaced families often must settle for sub-par housing and may search for new housing again within a year after the initial move[15], resulting in recurring upfront moving costs. The estimated costs of displacement within the first year ($5,300) could actually be incurred over multiple years. These additional costs amount to 22% of the average income of a Little Haiti household.

$4,578

Estimated cost associated with flood-induced property damages for a Little Haiti resident purchasing a home in a low elevation area.

HOMEOWNERS AND FLOOD DAMAGE

Low-income homeowners also face displacement pressures. While less vulnerable than renters, homeowners may miss mortgage payments or face issues paying rising property taxes, as property values rise.[19] Moreover, homeowners who purchase homes in new neighborhoods may face increased risk of flood damage as low-elevation neighborhoods become the most affordable option.[20] While some homeowners purchase flood insurance, many do not.

ADDITIONAL CONSIDERATIONS Many impacts of displacement cannot be estimated in terms of economic cost, either because they are beyond economic measure or there is currently insufficient data to estimate the costs with confidence. The true costs of displacement encompass many factors and amount to significantly higher costs than what was estimated in this analysis.

IMPACTS TO BUSINESS OWNERS

As demographics change at the neighborhood scale, minority- and immigrant-owned businesses may see a loss in customer base, as long-term customers leave the neighborhood and new residents entering the neighborhood patronize newer businesses targeting incoming residents.[21] If minority-owned businesses leave the neighborhood due to prohibitive rent increases (most small business owners do not own the property or building they occupy), residents who stay may no longer be able to access culturally relevant goods and services[22] and displaced businesses may not be able to rebuild a customer base in a new location.

LOSS OF CULTURAL AMENITIES, SERVICES, AND COMMUNITY NETWORKS

Displacement fragments social networks and disrupt community cohesion.[23, 24] Social networks among friends and family play a critical economic role for families (e.g., childcare) as well as mental and emotional benefits that are beyond economic measure. Access to culturally relevant services is also disrupted when displacement occurs.[25]

IMPACTS TO CITY GOVERNMENT – COST OF EVICTIONS/HOMELESSNESS

The cost of economic displacement is not only borne by households. Local city and county governments also bear an economic burden. Eviction impacts local governments through unpaid utility bills; evicted households who then experience homelessness also generate a cost, through increased demand for homelessness-related government services such as shelters. Miami-Dade County spends approximately $20,476 each year on homelessness- and eviction-related costs, per homeless household.[26]

14 The National Law Center on Homelessness & Poverty, 2018. Protect tenants, prevent homelessness.
15 Desmond, M. and Gershenson, C. 2016. Housing and Employment Insecurity among the Working Poor. Social Problems, 0: 1-22.
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18 National Center for Homeless Education. 2017. In School Every Day: Addressing Chronic Absenteeism Among Students Experiencing Homelessness.
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24 Atkinson, R. et al. 2011. Gentrification and Displacement: The Household Impacts of Neighborhood Change. Australian Housing and Urban Research Institute.
25 Gardheere, U. and Craig, L. 2015. Southeast Seattle Emerging Equitable Development Coalitions Community Report. Puget Sound Sage.
26 Miami-Dade County, 2018. FY 2018–2019 adopted budget and multi-year capital plan: homeless trust.

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