

SYNTHETIC MODELING GREATER MONTREAL REGION

THE BURDEN OF RENT



2025



Centraide
of Greater Montreal



In early 2025, Centraide commissioned RUNWITHIT Synthetics to model the Greater Montreal region in order to gain better insight into the population of our territory. The data available and used so far comes from the 2021 census and does not adequately reflect population trends in the Greater Montreal area.

Modeling our territory allows us to represent more accurately the reality of vulnerable populations that are sometimes not included in the censuses.

The project is a continuation of “La Grande Conversation”, which highlighted the issue of housing affordability in Greater Montreal.

The project consisted of two phases: the modeling of Greater Montreal and a specific use case for tenants, aimed at measuring the impact of a 6% rent increase on their level of precarity (the maximum increase allowed by the TAL in 2025 is 5,9%). Rent costs are influenced by numerous factors, including homeownership, new housing construction, immigration rates, vacant units, and renovictions. The increase authorized by the TAL is one of several factors affecting rent costs.

The goal is to stimulate discussion and raise awareness among various stakeholders about the need for social and affordable housing in Greater Montreal.



SYNTHETIC GREATER MONTREAL POPULATION - INDIVIDUALS

Every individual has 44 coefficients or socio-economic attributes



SYNTHETIC DATA HOUSEHOLDS

Every individual is associated with a household. Every household has 54 coefficients or socio-economic attributes.



WHY SYNTHETIC TWINS – INSPIRING CAPACITY, OVERCOMING COMPLEXITY

1

DATA AUGMENTATION

FILL DATA GAPS

Synthetic modelling generates synthetic data that can augment and disaggregate public data, improving reliability and accuracy, and providing a more complete picture of human impacts at the level of individuals.

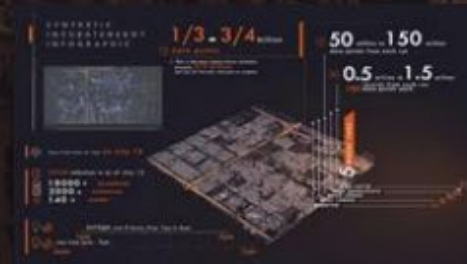


2

FORWARD LOOKING DATA

CRYSTAL BALL

Traditional approaches to data collection and decision support rely on backwards-looking data. Synthetic modelling allows you to see the future impact of today's decisions.



3

DYNAMIC VISUALIZATION

SYNTHETIC VS DIGITAL

Synthetic models are dynamic living environments with digital entities that can interact with their environment and respond to interventions and stimuli.



HELPING INVISIBLE POPULATIONS BE SEEN

- RWI's Synthetic Environments feature representative, never-identified Synthetic Populations.
- Complete with a set of attributes reflecting their lives, demographics, health and habits, psychographics, patterns of life, circumstances, and values – all generated from publicly available data.
- RWI generates Synthetic Populations without relying on privacy-protected information or historical data that is missing or inaccurate.
- RWI's technology can overcome limitations of data due to bias or oversight in collection, **allowing populations that have been historically undercounted or missing from traditional datasets to be seen.**
- **Examples would include international students, preschool-aged children, individuals experiencing homelessness, Indigenous communities and immigrants.**



REPRESENTATIVE SYNTHETIC POPULATION DATA

66 census subdivisions across Greater Montreal

Census Data
2021



3,351,685
Total People



1,457,270
Total Households

Synthetic
Population Data



4,092,360
Total People



1,584,325
Total Households



* Census subdivisions serviced by Centraide of Greater Montreal



UNDERSTANDING THE IMPACT OF A 6% RENTAL PRICE INCREASE RENTERS IN GREATER MONTRÉAL*



1,475,080 people
in 792,940 renter
households
across 66 census
subdivisions*

* Census subdivisions serviced by Centraide of Greater Montreal



PRECARITY INDEX



Traditional measures of financial vulnerability focus primarily on household income and overlook the role of expenses.

To capture a fuller picture, we introduce the **Precarity Index**, which combines household income with essential expenses to determine levels of financial precarity.

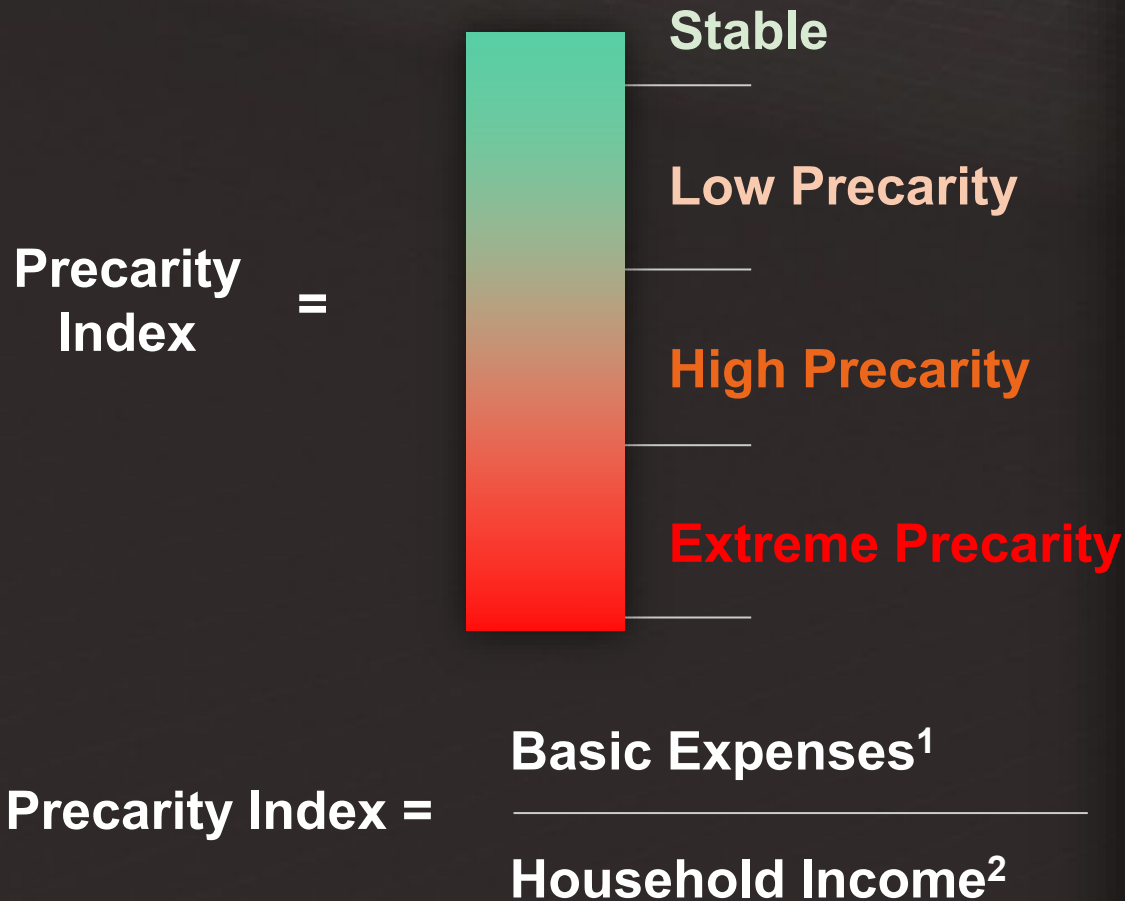
$$\text{Precarity Index} = \frac{\text{Basic Expenses}^1}{\text{Household Income}^2}$$

1: Basic Expenses = Rental Cost + Energy Cost + Food Cost

2: Household Income is based on the total income reported in the census, including different supports. It takes into consideration the size of the corresponding household



PRECARITY INDEX



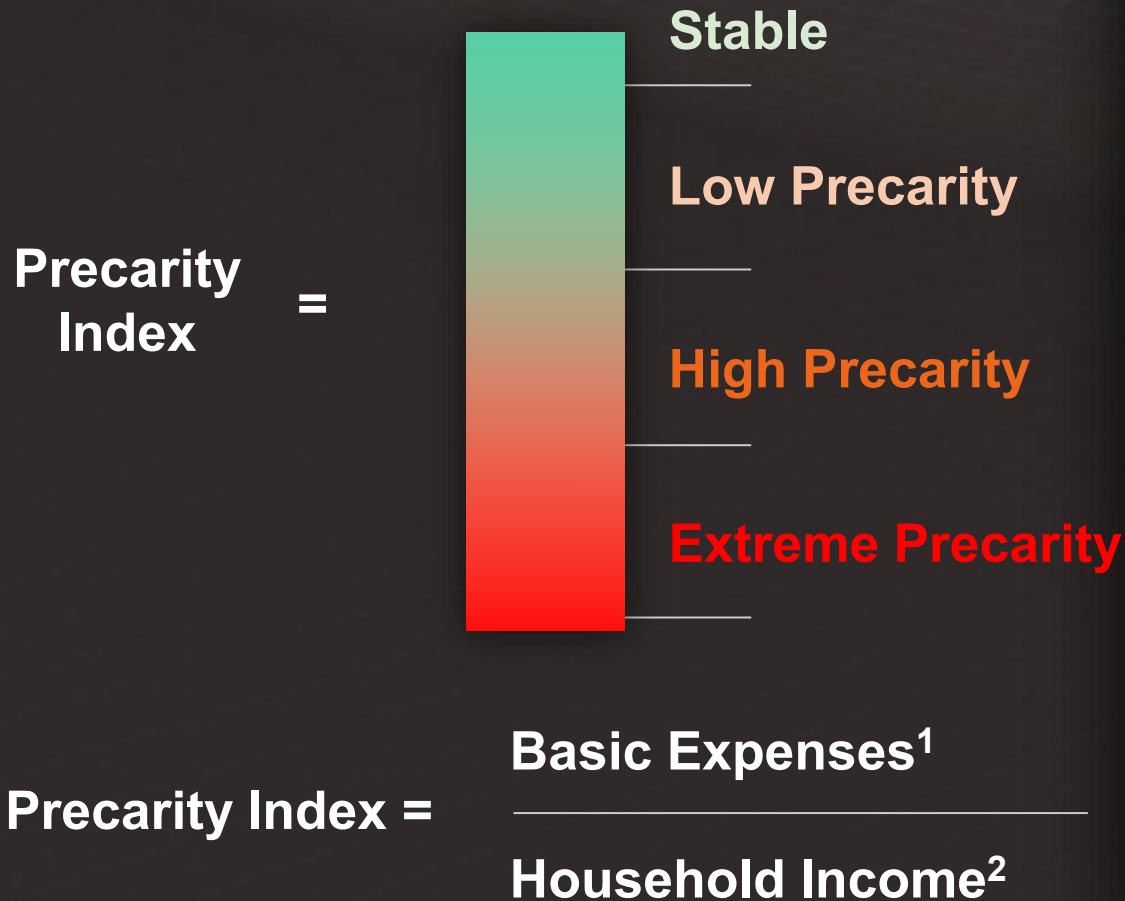
- Precarity Index thresholds for Low Precarity, High Precarity and Extreme Precarity are decided for each census tract, based upon the minimum precarity index of people and their income.
- The Extreme precarity threshold is determined by the minimum precarity index of people with household income below the Market Basket Measure (MBM).
- The High precarity threshold is determined by the minimum precarity index of people with household income below the Low-Income Measure (LIM 50).
- The Low Precarity threshold is determined by the minimum precarity index of people with household income below 75% of the adjusted median revenue.
- **In case of an economic change such as a 6% rent increase**, the Precarity Index changes for each individual, but the thresholds for Extreme Precarity, High precarity and Low Precarity stays the same.

1: Basic Expenses = Rental Cost + Energy Cost + Food Cost

2: Household Income is based on the total income reported in the census, including different supports. It takes into consideration the size of the corresponding household



PRECARITY INDEX - Example



Because incomes and living costs differ by neighbourhood, the exact precarity index cut-offs are set separately for each census tract.

For example, Census tract 0401_00 (Ville Mont-Royal) has the following thresholds:

Extreme precarity: 0.95

High precarity: 0.84

Low precarity: 0.36

In this example, every individual living in a household with a precarity index greater or equal to 0.95 is considered living in Extreme precarity. Every individual living in a household with a precarity index greater or equal to 0.84 is considered living in High precarity. Finally, every individual living in a household with a precarity index greater or equal to 0.36 is considered living in Low precarity.

1: Basic Expenses = Rental Cost + Energy Cost + Food Cost

2: Household Income is based on the total income reported in the census, including different supports. It takes into consideration the size of the corresponding household



PRECARITY IN GREATER MONTREAL

7 OUT OF 10 RENTERS LIVE IN A FORM OF PRECARITY



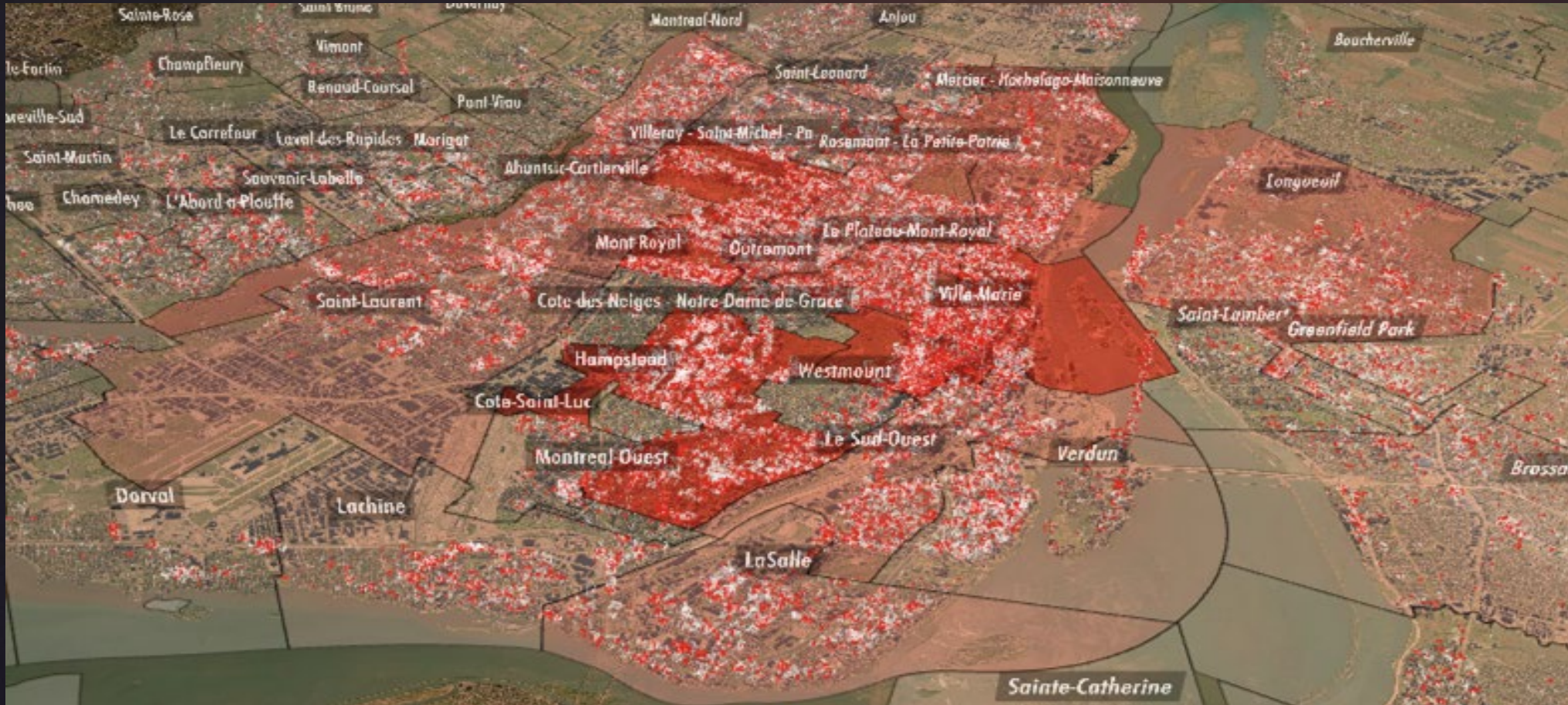
PRECARITY



STABILITY



RENTERS IN EXTREME PRECARIETY IN ALL NEIGHBOURHOODS



RENTERS IN EXTREME PRECARITY

422,370 people in renter households are already in Extreme Precarity



40% (169,000) of renters living in Extreme Precarity are concentrated in five neighbourhoods:

1. Ville-Marie ●
2. Côte-des-Neiges-NDG ● ● ●
3. Villeray-Saint-Michel-Parc-Extension ● ●
4. Le Plateau-Mont-Royal ●
5. Mercier-Hochelaga-Maisonneuve ● ● ●

The top 10 neighbourhoods account for 59 % (250,000) of people living in Extreme Precarity.

Darker neighbourhoods indicate where a higher number of people in Extreme Precarity are clustered.

- Top 5 neighbourhoods in Extreme Precarity ● Top 5 neighbourhoods in High Precarity ● Top 5 neighbourhoods in Low Precarity



RENT PRESSURE AND EXTREME PRECARITY: WHAT A 6% INCREASE MEANS

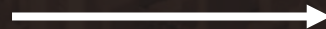
A 6% rent increase pushes thousands to **Extreme Precarity**

People in Extreme Precarity



Additional **16,670** people in renter households fall into Extreme Precarity.

422,370
people



439,040
people

Jump of **4%** in count of people in Extreme Precarity.



MAPPING RENT-INDUCED EXTREME PRECARIETY SHIFTS ACROSS NEIGHBOURHOODS

A 6% rent increase would push **16,670** additional renters into Extreme Precarity



Of the 16,670 tenants who would fall into extreme poverty, **10,000 of them (62%) are concentrated in the following 10 districts:**

- Ville-Marie*
- CDN - NDG*
- Villeray-Saint-Michel-Parc-Extension*
- Le Plateau-Mont-Royal*
- Ahuntsic-Cartierville
- Mercier-Hochelaga-Maisonneuve*
- Le Sud-Ouest
- Montréal-Nord
- Rosemont-La Petite-Patrie
- LaSalle

Bars show count of people in renter households who got pushed into Extreme Precarity.

* Is in the top 5 neighbourhoods with the highest count of people in Extreme Precarity



MAPPING EXTREME PRECARITY RATES ACROSS HIGH-RENTER NEIGHBOURHOODS

EXTREME PRECARITY RATES



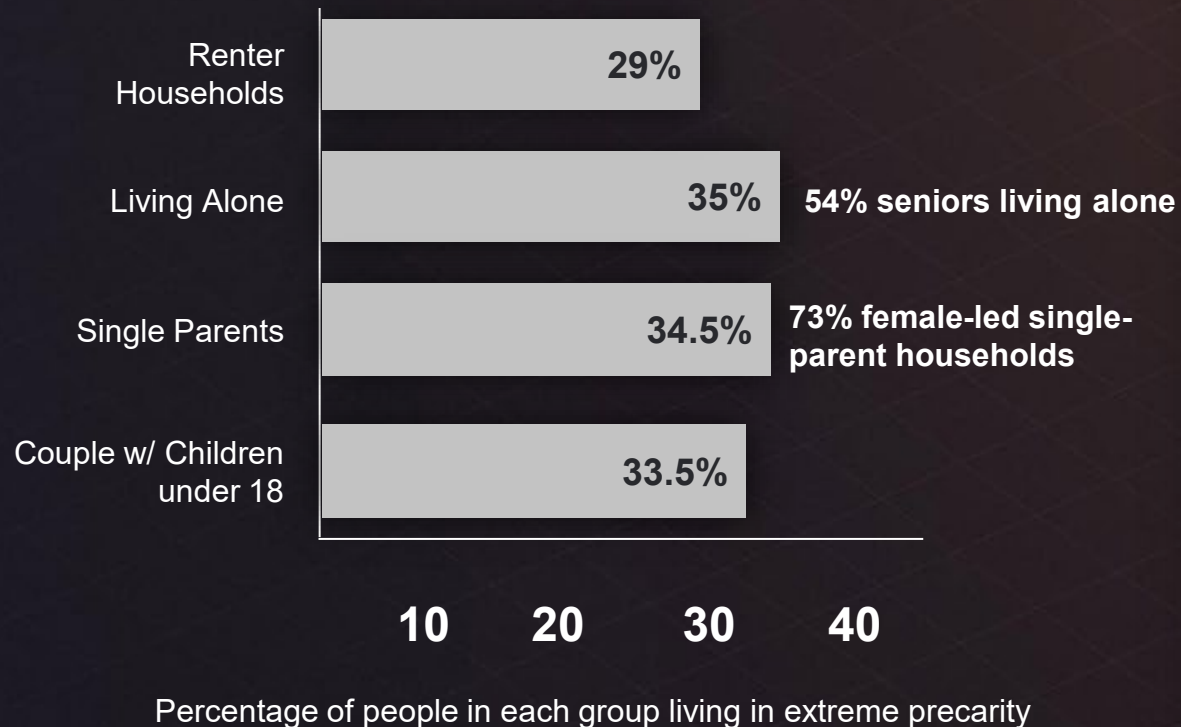
Ville-Marie and Le Plateau–Mont-Royal have deepest concentration of Extreme Precarity, with Extreme Precarity rates of 43% and 34% respectively.

Effect of 6% Rent Increase on Extreme Precarity rate:
Ville-Marie has highest pp increase (~2.3 pp) in Extreme Precarity.



DEMOGRAPHIC PROFILE OF RENTERS IN EXTREME PRECARITY

Current Extreme Precarity Profile

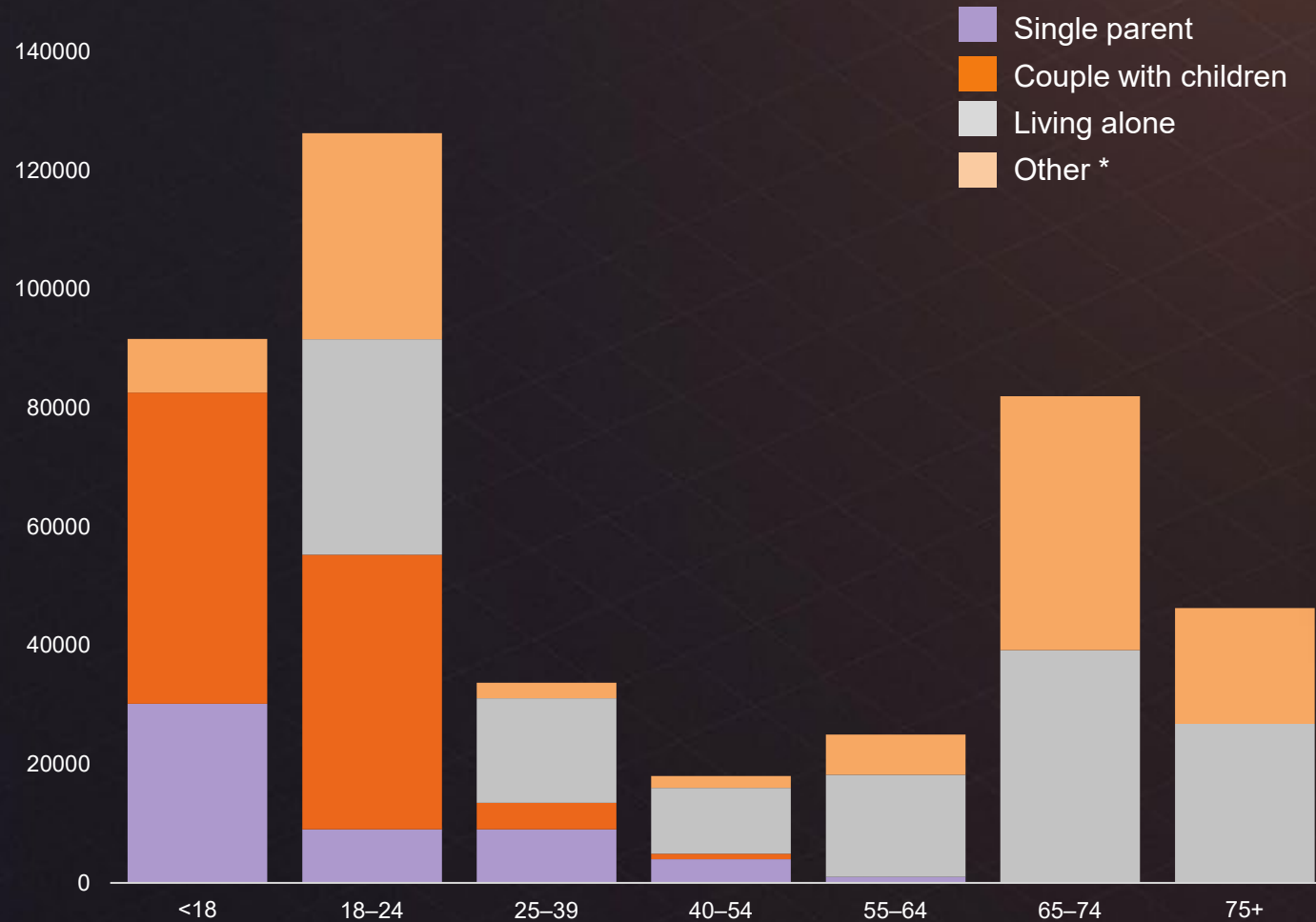


Effect of the 6% Rent Increase

- ↑ +1.1pp** 16,670 additional people move to Extreme Precarity.
- ↑ +1.1pp** 4,720 additional people living alone move to Extreme Precarity.
- ↑ +1.7pp** 2,630 additional people in single-parent households move to Extreme Precarity.
- ↑ +1.2pp** 3,840 additional people in couple with children households move to Extreme Precarity.



DEMOGRAPHIC PROFILE OF RENTERS IN EXTREME PRECARIETY



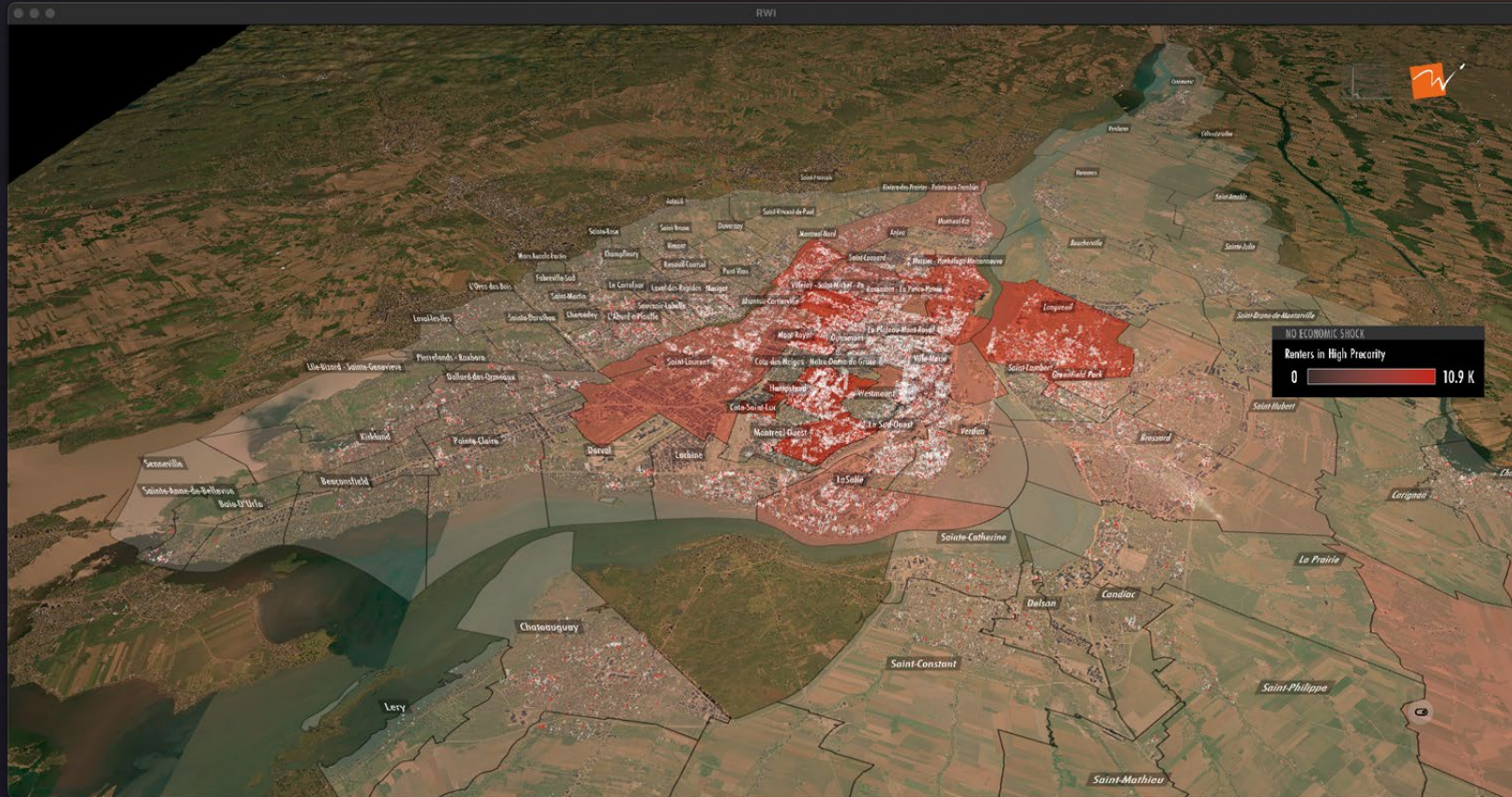
For every 10 people in renter households in Extreme Precarity, **2 are children under 18.**



*Multigenerational households, multi-family households, families with additional persons, households with two or more people, couples without children, couples with children aged 18 and older.



THE SPATIAL FOOTPRINT AND SCALE OF HIGH PRECARIETY



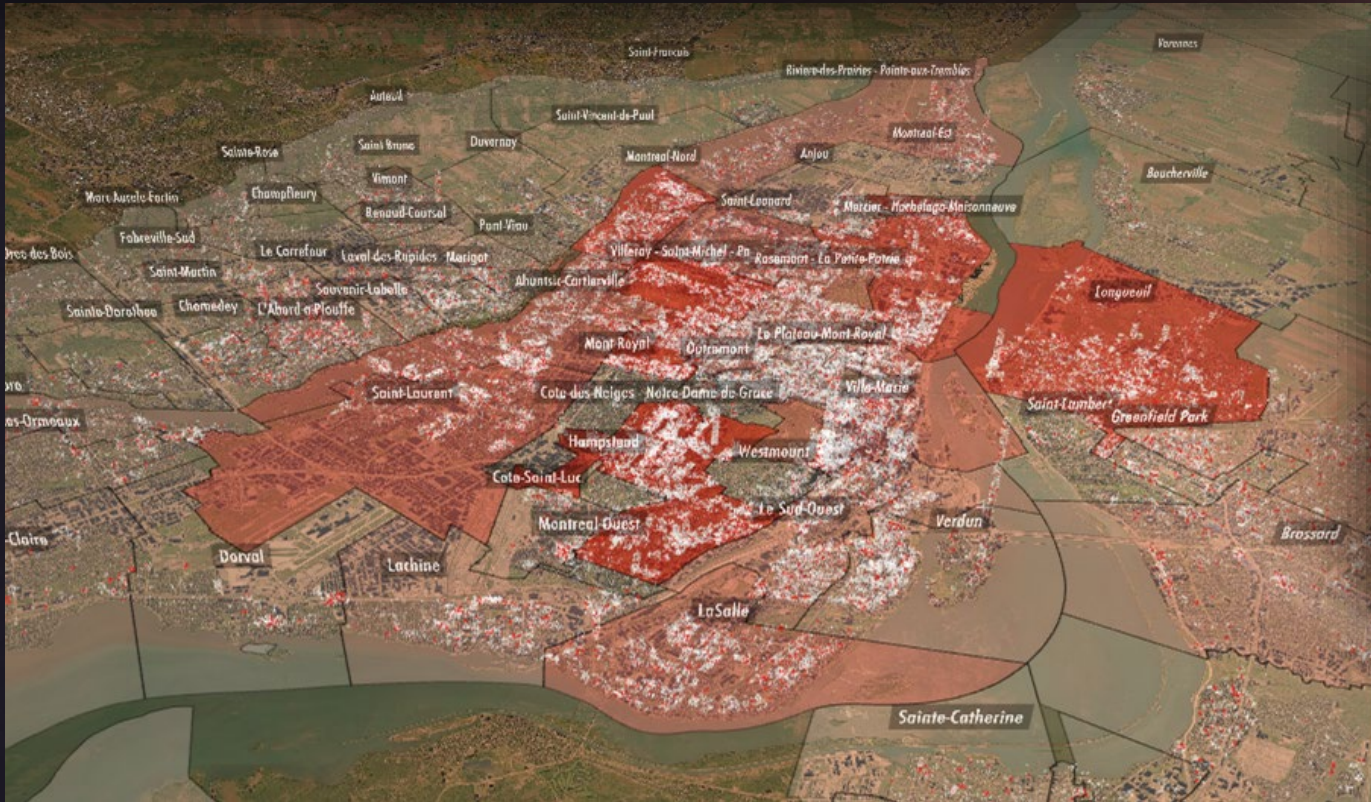
- **139,660** in renter households are living in High Precarity
- In total, **40%** of renters are either already in extreme or High Precarity

Darker neighbourhoods indicate areas where a higher numbers of renters in High Precarity are clustered.



IDENTIFYING NEIGHBOURHOODS WITH HIGHEST NUMBER OF RENTERS IN HIGH PRECARITY

139,660 renters in High Precarity



More than **40,000 renters** across the top five neighbourhoods are in **High Precarity**:

1. Villeray-Saint-Michel-Parc-Extension ● ●
2. Côte-des-Neiges-NDG ● ● ●
3. Longueuil ● ●
4. Mercier-Hochelaga-Maisonneuve ● ● ●
5. Montréal-Nord ●

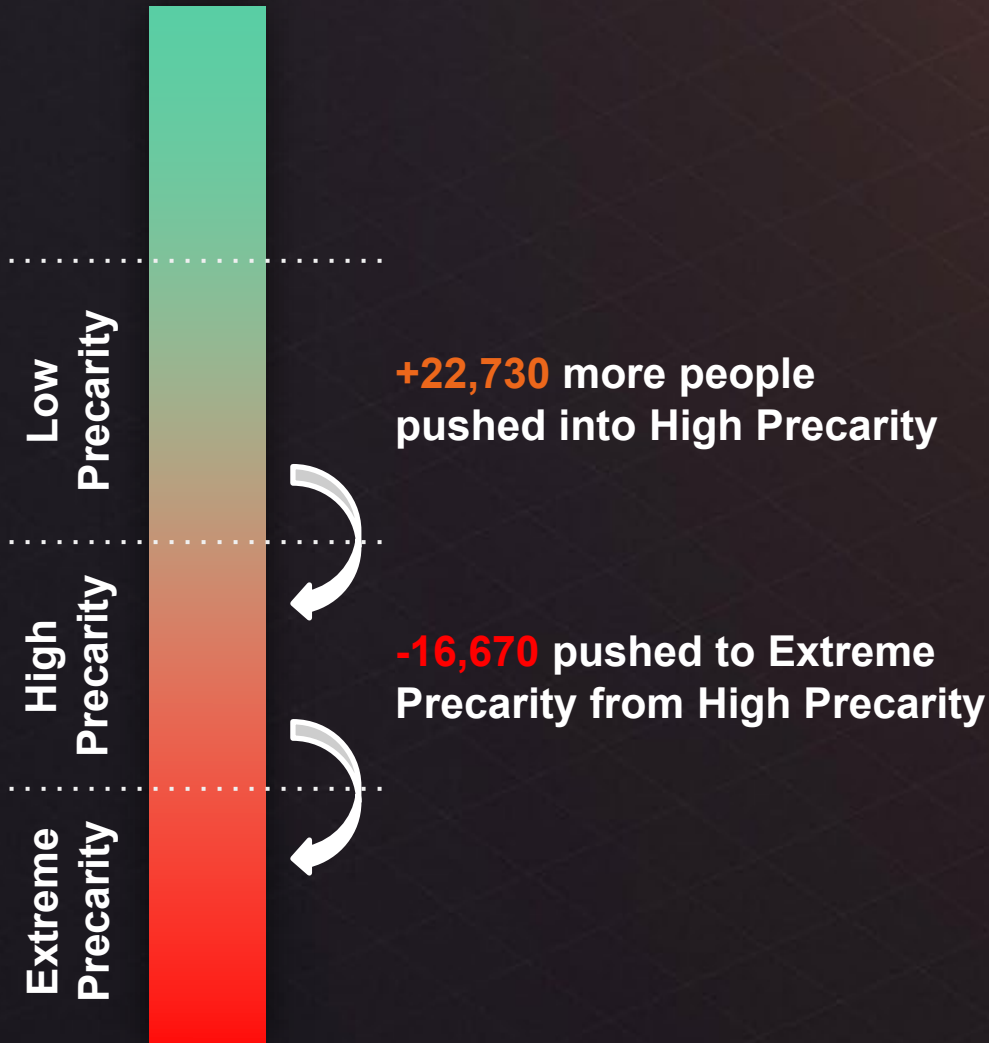
Darker neighbourhoods indicate where a higher number of people in High Precarity are clustered.

● Top 5 neighbourhoods in Extreme Precarity ● Top 5 neighbourhoods in High Precarity ● Top 5 neighbourhoods in Low Precarity



RENT PRESSURE AND HIGH PRECARITY: WHAT A 6% INCREASE MEANS

A 6% rent increase pushes thousands to High Precarity

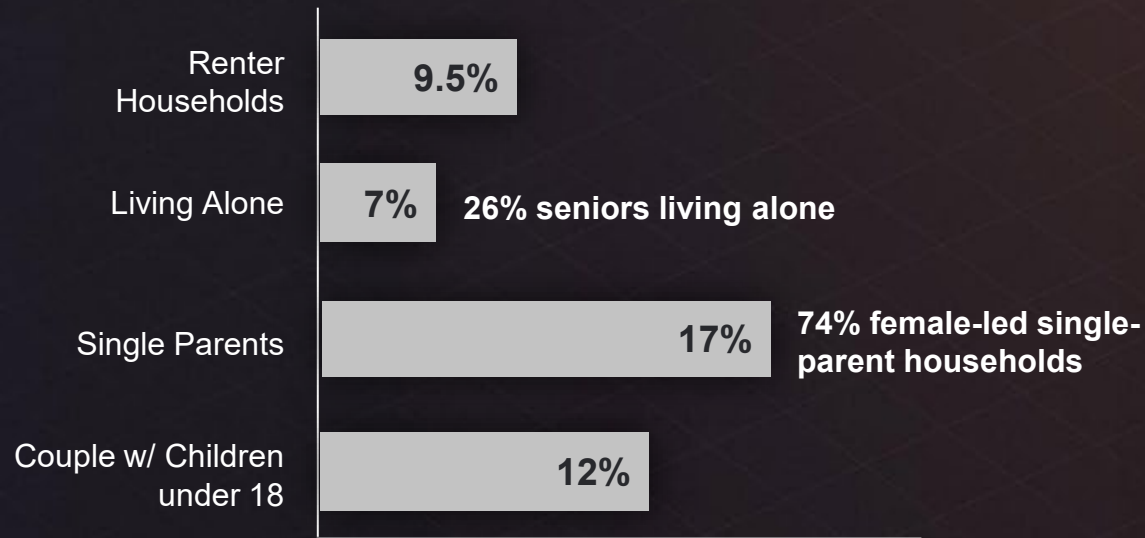


With a 6% rent increase, High precarity grows by **6,060 people.**



DEMOGRAPHIC PROFILE OF RENTERS IN HIGH PRECARITY

Current High Precarity Profile



Percentage of people in each group living in high precarity

Effect of the 6% Rent Increase

↑ +0.5pp

22,730 additional people in High Precarity, 16,670 moved to Extreme Precarity

↑ +0.5pp

6,120 additional people living alone move to High Precarity, 4,720 moved to Extreme Precarity.

↑ +0.9pp

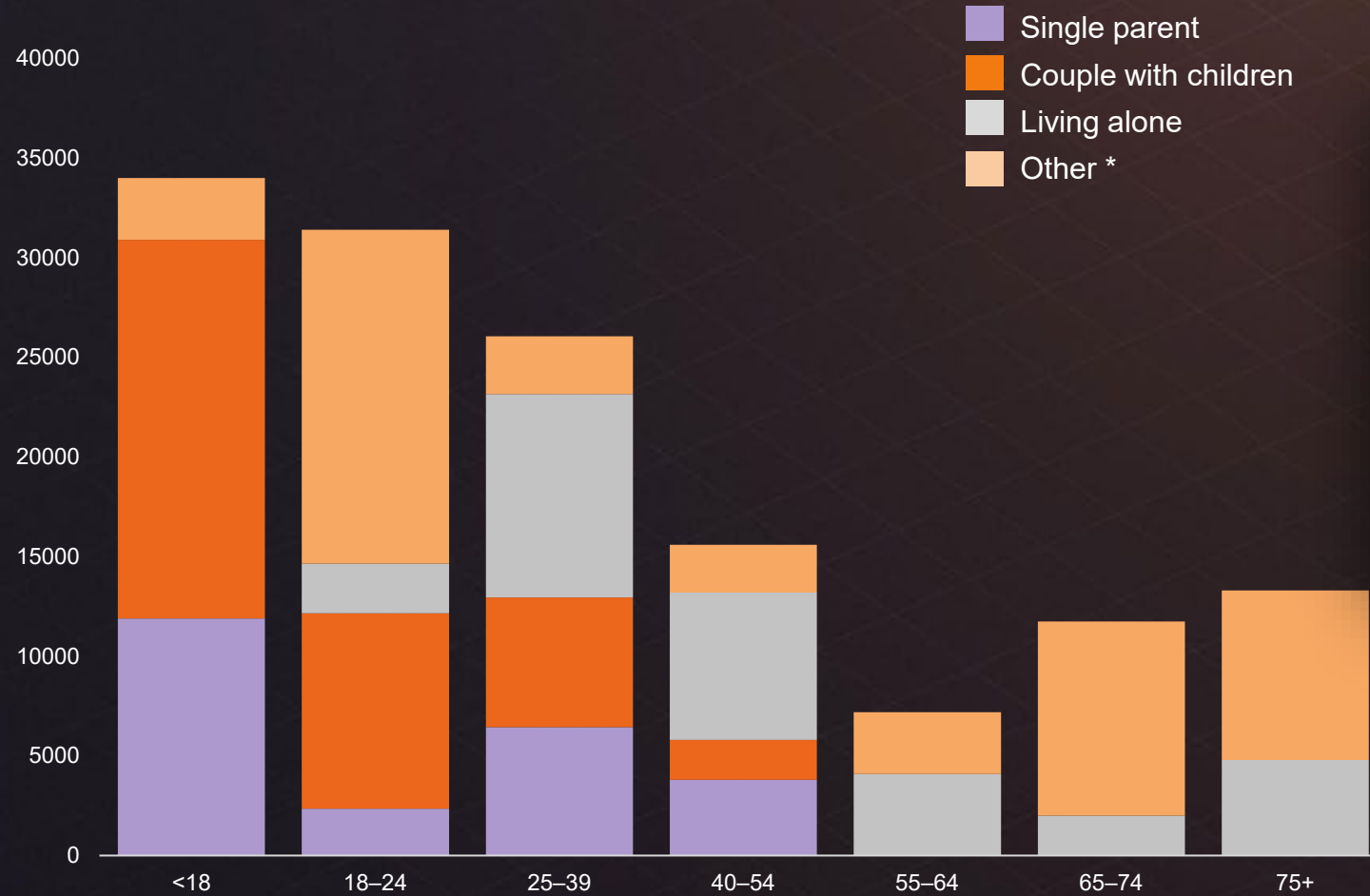
3,890 additional people in single-parent households move to High Precarity, 2,630 moved to Extreme Precarity

↑ +0.7pp

6,140 additional people in couple with children households move to High Precarity, 3,840 moved to Extreme Precarity



DEMOGRAPHIC PROFILE OF RENTERS IN HIGH PRECARITY

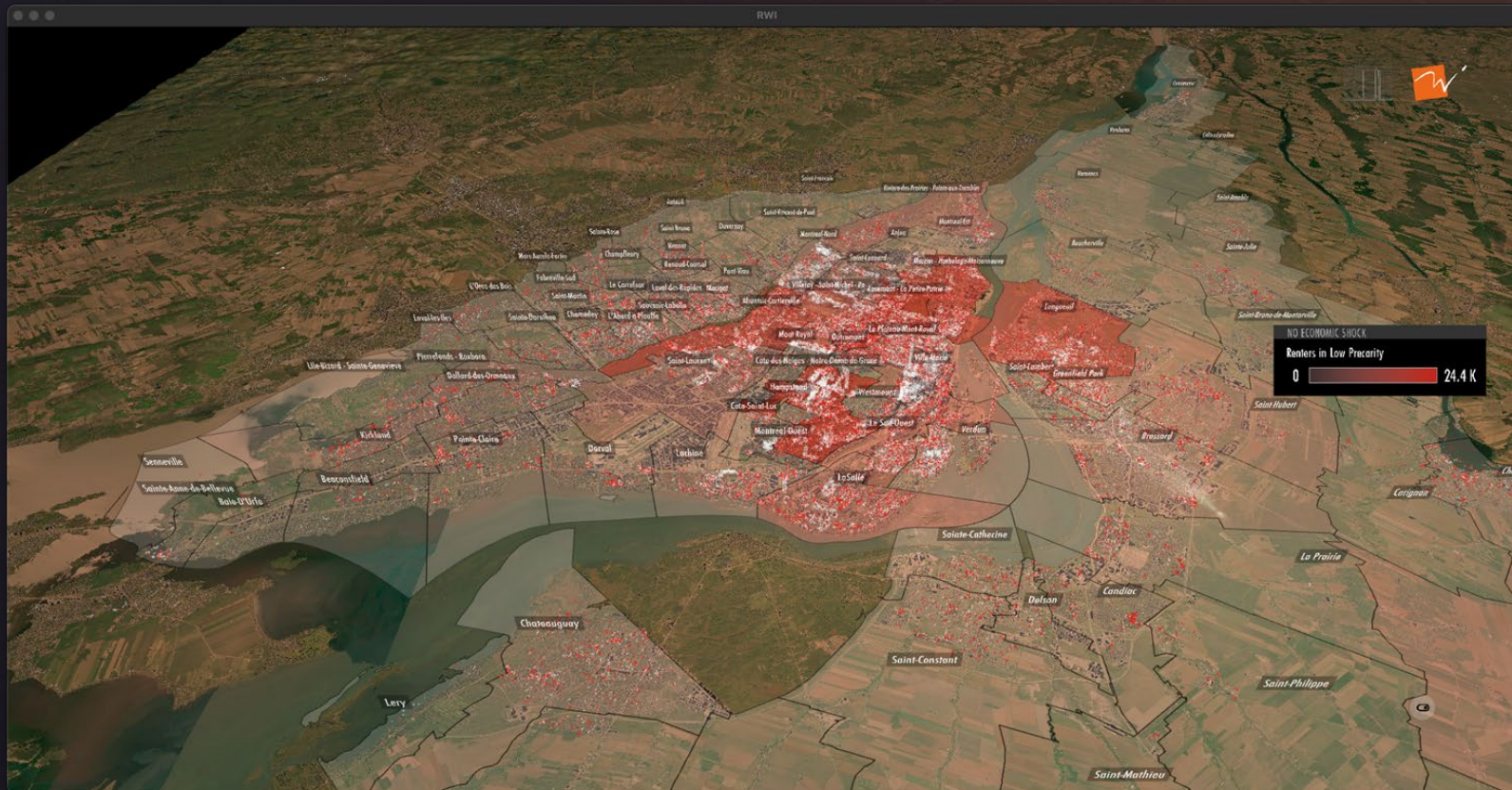


For every 100 people in renter households in High Precarity, **24 are children under 18.**

*Multigenerational households, multi-family households, families with additional persons, households with two or more people, couples without children, couples with children aged 18 and older.



THE SPATIAL FOOTPRINT AND SCALE OF LOW PRECARIETY



- For every 10 renter, **three** are in Low Precarity
- In total, **70%** of renters are either already in a form of Precarity

Darker neighbourhoods indicate areas where a higher numbers of renters in Low Precarity are clustered.



IDENTIFYING NEIGHBOURHOODS WITH HIGHEST NUMBER OF RENTERS IN LOW PRECARITY

403,010 renters in Low precarity



28% (111,000) of Low precarity situations are concentrated in the following five districts:

1. Rosemont–La Petite-Patrie ●
2. Côte-des-Neiges–Notre-Dame-de-Grace ● ● ●
3. Mercier–Hochelaga-Maisonneuve ● ● ●
4. Ahuntsic-Cartierville ●
5. Longueuil ● ●

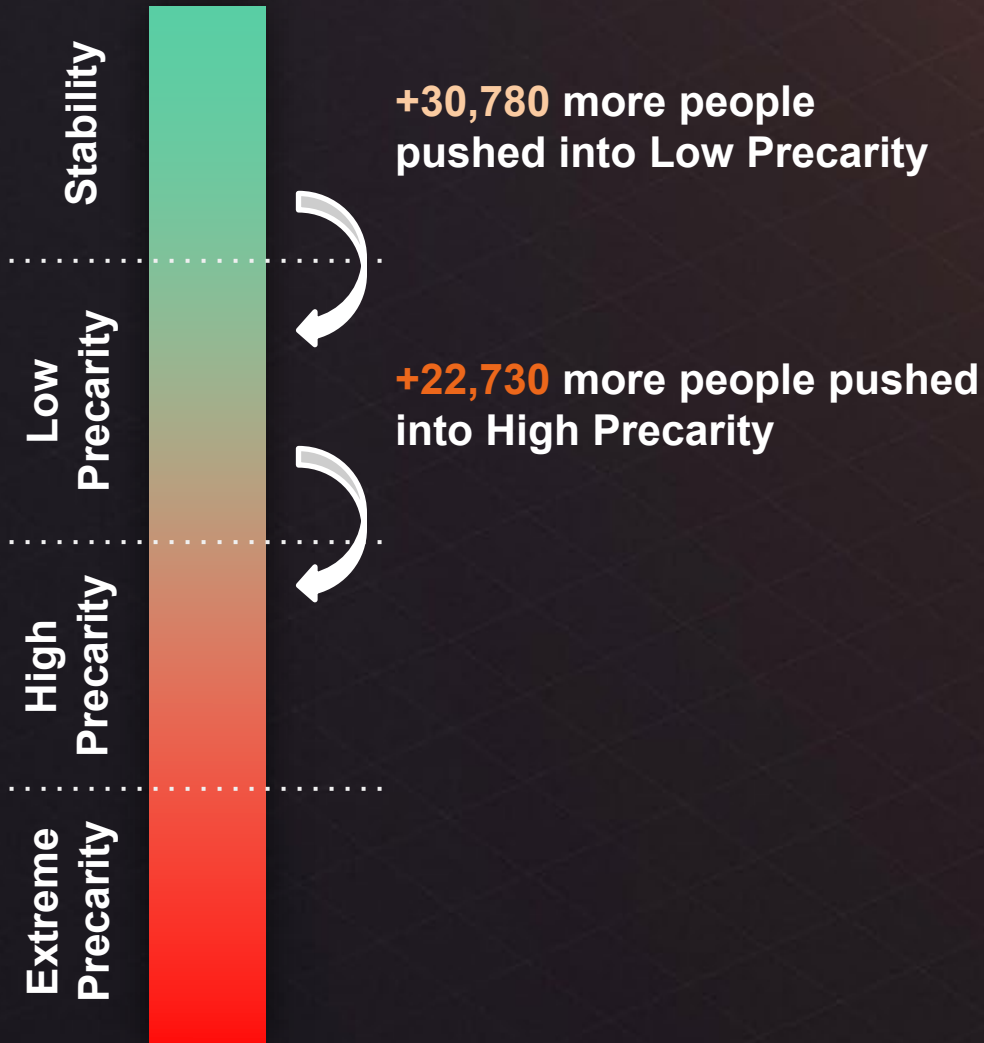
Darker neighbourhoods indicate areas where a higher numbers of renters in Low Precarity are clustered.

● Top 5 neighbourhoods in Extreme Precarity ● Top 5 neighbourhoods in High Precarity ● Top 5 neighbourhoods in Low Precarity



RENT PRESSURE AND HIGH PRECARITY: WHAT A 6% INCREASE MEANS

A 6% rent increase pushes thousands to High Precarity



With a 6% rent increase,
Low Precarity grows by
8,050 people.



EFFECT OF 6% RENT INCREASE ON PEOPLE IN STABILITY

A 6% rent increase pushes over 30,780 previously Stable renters into Low Precarity.



Top 5 neighbourhoods based upon count of renters moving from stability to Low-precarity:

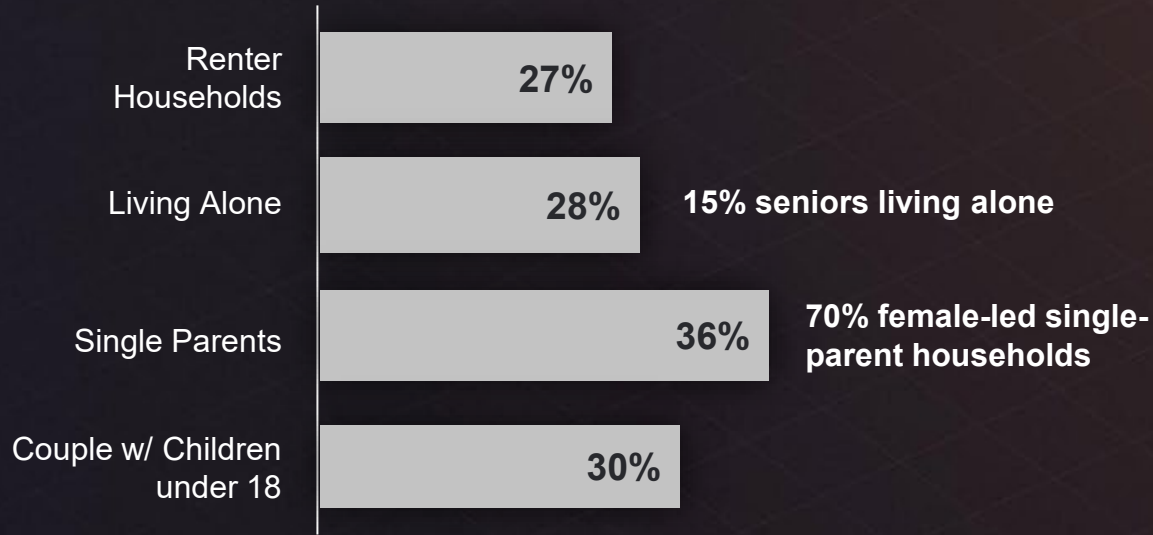
- Cote-des-Neiges–Notre-Dame-de-Grace (3,390)
- Ville-Marie (2,350)
- Rosemont–La Petite-Patrie (2,250)
- Le Plateau–Mont-Royal (2,080)
- Villeray–Saint-Michel–Parc-Extension (1,880)

Bars show count of people in renter households who got pushed into Low Precarity.



DEMOGRAPHIC PROFILE OF RENTERS IN LOW PRECARITY

Current Low Precarity Profile



Percentage of people in each group living in extreme precarity

Effect of the 6% Rent Increase

↑ +0.5pp

30,780 additional people move to Low Precarity but 22,730 moved to High Precarity

↑ +1.7pp

12,840 additional people living alone move to Low Precarity but 6,120 moved to High Precarity

↑ -1.3pp

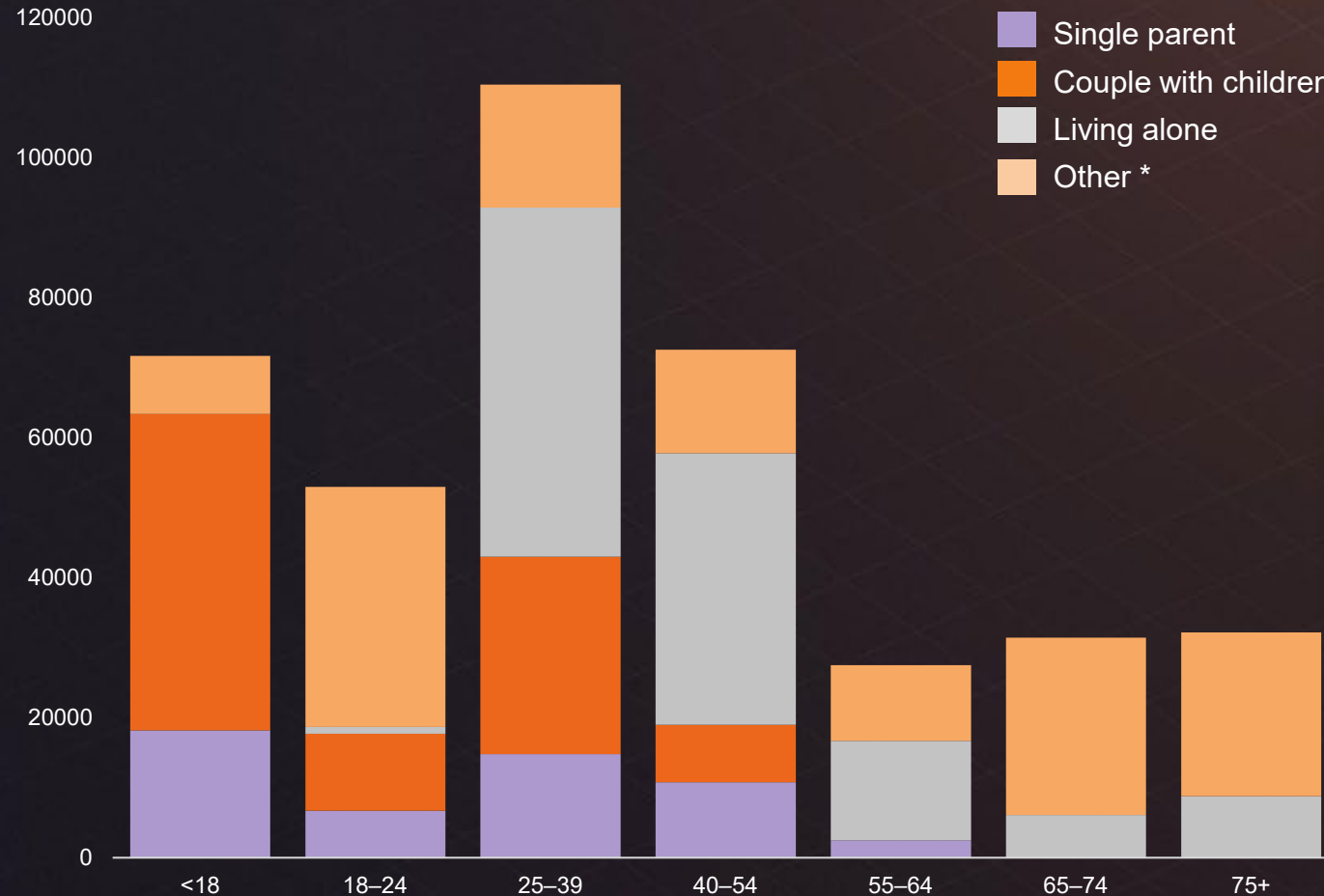
1,710 additional people in single-parent households move to Low Precarity but 3,890 moved to High Precarity

↑ +0.1pp

5,630 additional people in couple with children households move to Low Precarity but 6,140 moved to High Precarity



DEMOGRAPHIC PROFILE OF RENTERS IN LOW PRECARITY

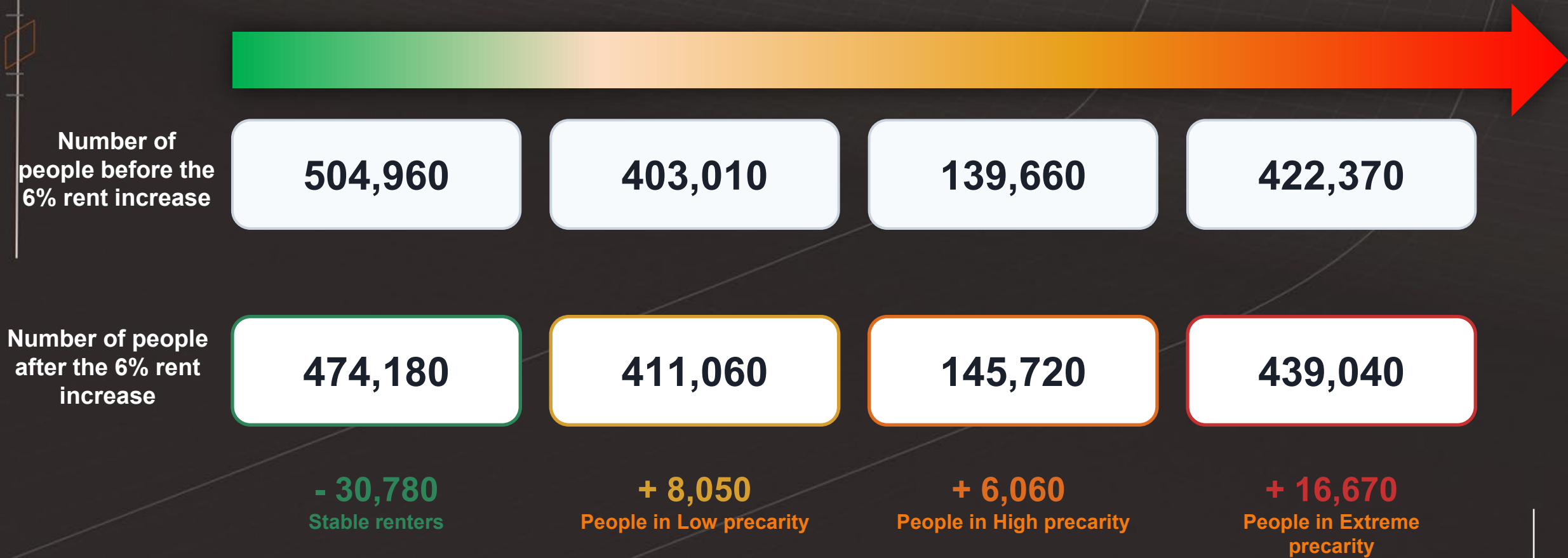


For every 100 people in renter households in Low Precarity, **18 are children under 18.**

*Multigenerational households, multi-family households, families with additional persons, households with two or more people, couples without children, couples with children aged 18 and older.



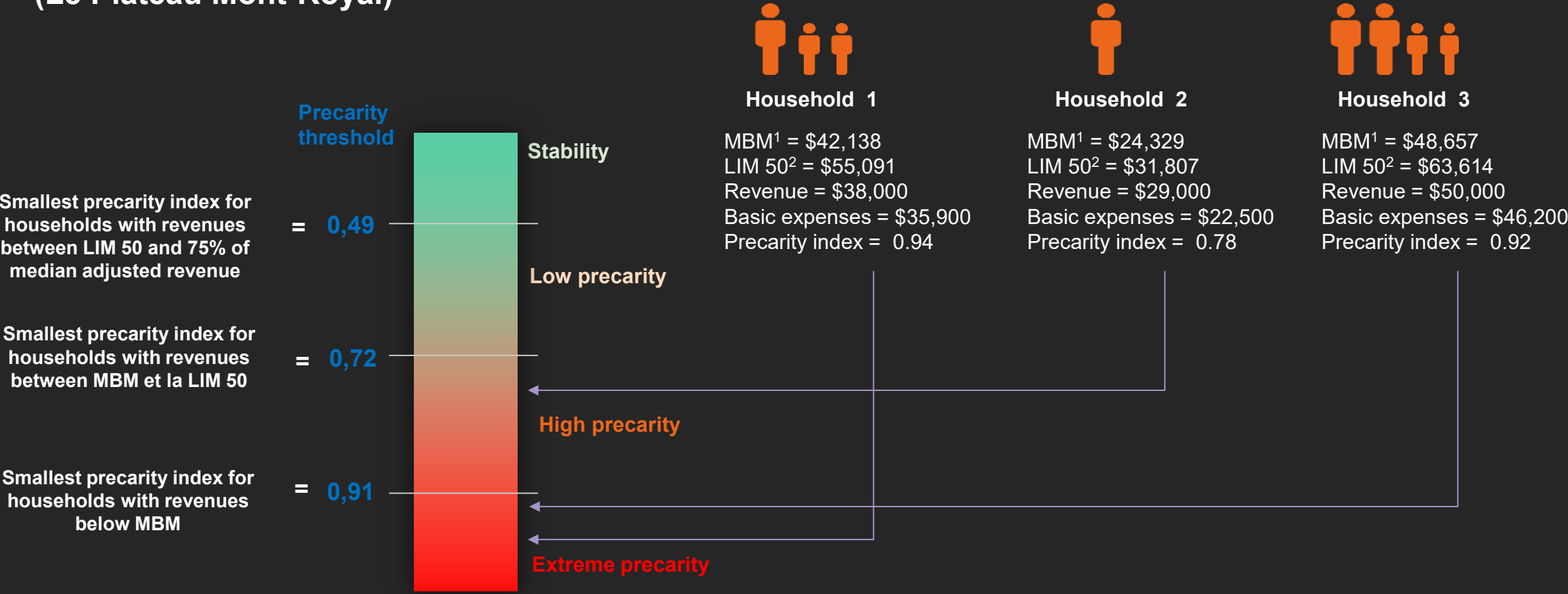
IMPACT OF A 6% RENT INCREASE FOR PEOPLE IN RENTER HOUSEHOLDS



AN 6 % RENT INCREASE PUSHES AN ADDITIONNAL 30,780 PEOPLE FROM STABILITY TO PRECARIETY

Example:

Census tract 0171_00 (Le Plateau Mont-Royal)



1: Market Basket Measure (MBM), 2023 base, Census metropolitan area part, Total threshold by family size, [Market Basket Measure thresholds by Market Basket Measure region and family size, in current dollars](#)

2: Low-Income Measure (LIM 50), by Household Size, Québec, 2022 [Seuils du faible revenu selon la Mesure du faible revenu \(MFR\), selon la taille du ménage, Québec, 1996-2023](#)

THANK YOU!

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