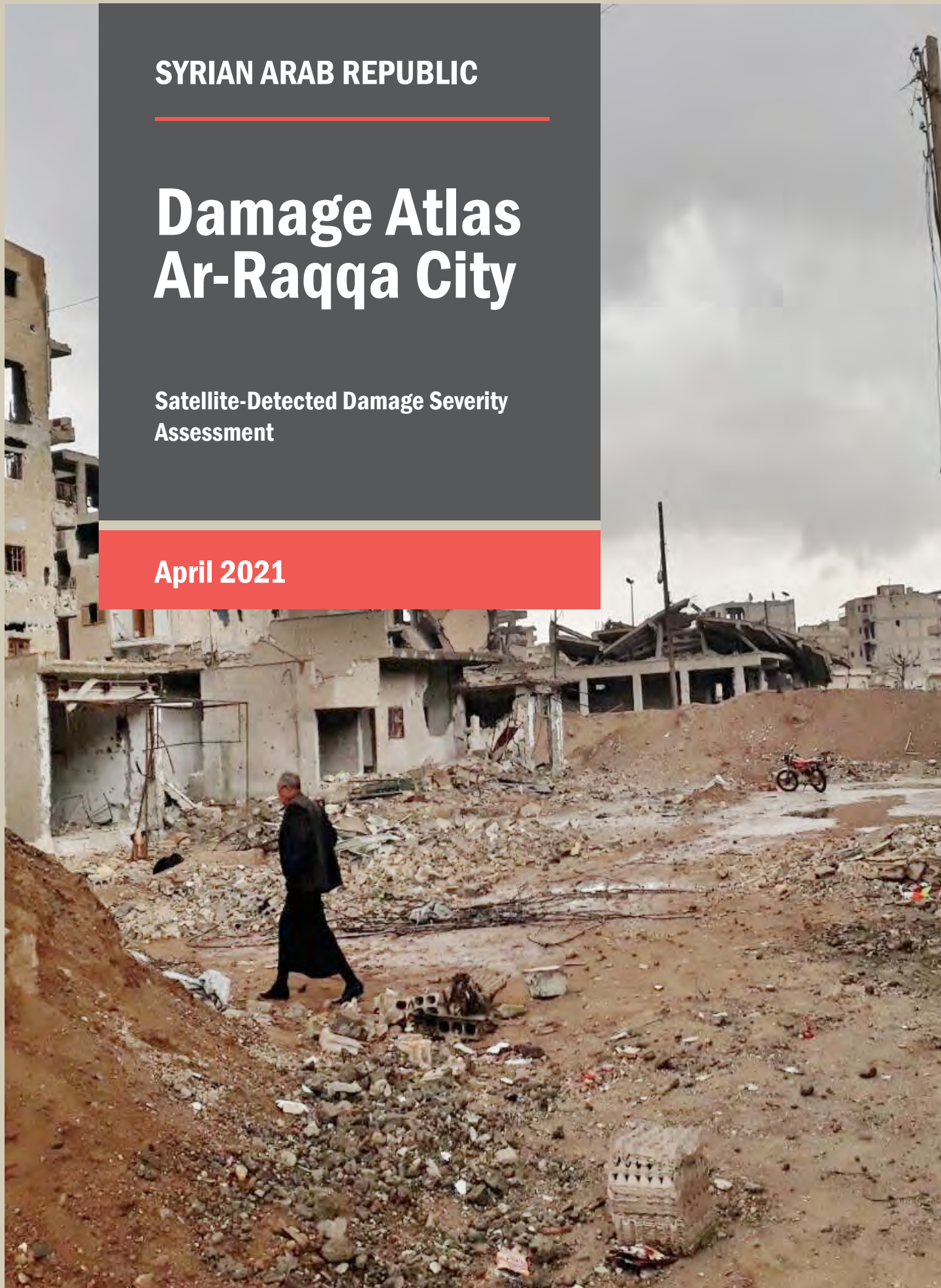


**SYRIAN ARAB REPUBLIC**

# Damage Atlas Ar-Raqqa City

**Satellite-Detected Damage Severity  
Assessment**

**April 2021**



## CONTEXT

Between November 2016 and October 2017, the conflict in Ar-Raqqa city escalated, leading to ruined infrastructure and displacement of the larger majority of its population.<sup>1</sup> The city population dropped from an estimated 300,000 in late 2016 to around 7,000 persons in October 2017. While in February 2017, the city had a total of 1,667 satellite-detected damaged or destroyed structures, the total number of affected structures detected had soared up to 12,707 by October 2017. Since then, there have been waves or returnees and the current population estimates vary from 150,000 up to 330,000 people.<sup>2</sup> Shelter needs remain high, and half of the population is estimated to be living in damaged or inadequate shelters.<sup>3,4</sup> This city atlas provides detailed information on rehabilitation, reconstruction and damage to structures across 23 neighbourhoods in the Ar-Raqqa city.

## السياق

بين نوفمبر 2016 وأكتوبر 2017، تصاعد الصراع الدائر في مدينة الرقة أدى إلى تدمير البنية التحتية وتشريد الغالبية العظمى من سكانها. انخفض عدد سكان مدينة الرقة من حوالي 300,000 في أواخر عام 2016 إلى أقل من 7,000 شخص في أكتوبر 2017. كان في مدينة الرقة في فبراير 2017 ما مجموعه 1,667 مبنى تم اكتشافها متضررة أو مدمرة بواسطة الأقمار الصناعية، والتي عند تقييمها في نهاية الصراع في أكتوبر 2017 شهدت ارتفاعاً كبيراً مع زيادة إلى 12,668 مبنى متضرر داخل المدينة. ومنذ ذلك الحين، كانت هناك موجات من العائدين وتتراوح التقديرات السكانية الحالية بين 150,000 إلى 330,000 نسمة. لا تزال احتياجات المأوى مرتفعة، ويقدر أن نصف السكان يعيشون في ملاجئ متضررة أو غير ملائمة. يوفر أطلس المدينة هذا معلومات مفصلة عن إعادة التأهيل وإعادة الإعمار والأضرار التي لحقت بالمباني في 23 حيًا في مدينة الرقة.

## OVERVIEW

In partnership with United Nation Operational Satellite Applications Programme - UNOSAT, REACH conducted a damage and rehabilitation assessment to map damaged, demolished, reconstructed and rehabilitated buildings, as well as affected key infrastructure, such as schools, markets and hospitals. Through this comprehensive analysis on the specific location and classification of structural status, the atlas aims to be a tool for local government and humanitarian organizations to facilitate the planning and implementation of humanitarian activities in Ar-Raqqa. In particular, when used together with identified shelter needs as reported by the Humanitarian Needs Assessment Programme (HNAP),<sup>3</sup> the atlas aims to assist humanitarian actors performing emergency repairs of War Damaged Shelters (WDS), as well as to advise reconstruction and early recovery.

## لمحة عامة

بالشراكة مع برنامج الأمم المتحدة للتطبيقات الساتلية التشغيلية - يونوسات، أجرت ريتش تقييمًا للأضرار وإعادة التأهيل لرسم خرائط للمباني المتضررة والمهدمة والمعاد بناؤها والمعاد تأهيلها، فضلاً عن البنية التحتية الرئيسية المتضررة، مثل المدارس والأسواق والمستشفيات. من خلال هذا التحليل الشامل للموقع المحدد وتصنيف الوضع الهيكلي، يهدف الأطلس إلى أن يكون أداة للحكومة المحلية والمنظمات الإنسانية لتسهيل تخطيط وتنفيذ الأنشطة الإنسانية في الرقة. على وجه الخصوص، عند استخدامه جنبًا إلى جنب مع احتياجات المأوى المحددة كما ذكرت (منظمة هناعب)، يهدف الأطلس إلى مساعدة الجهات الإنسانية الفاعلة في إجراء إصلاحات طارئة للملاجئ التي دمرتها الحرب، وكذلك تقديم المشورة لإعادة الإعمار والتعافي المبكر.

## METHODOLOGY

Using high resolution satellite imagery acquired on 29 April 2021, 21 October 2017, 03 February 2017, 29 May 2015, 12 February 2014, and 22 October 2013, structural changes over time were detected, providing evidence of the physical status of observed structures. Based on the type of change, buildings were categorized to be intact, damaged, destroyed, demolished, rehabilitated or reconstructed. Based on the Infrastructure Classification by the UNOSAT-UNITAR, 313 key infrastructure points of interest were also identified and their likely physical status was assessed.<sup>5</sup> This damage atlas presents the results disaggregated to a neighbourhood-level, whereas the overall city-level results can be found in the Ar-Raqqa Damage Analysis Report.<sup>6</sup>

## المنهجية

باستخدام صور الأقمار الصناعية العالية الدقة التي تم الحصول عليها في 29 أبريل 2021، 21 أكتوبر 2017، 3 فبراير 2017، 29 مايو 2015، 12 فبراير 2014، 22 أكتوبر 2013، تم تحديد الأضرار الهيكلية بناءً على نوع التغيير، تم تصنيف المباني على أنها سليمة أو متضررة أو مدمرة أو مهدمة أو معاد تأهيلها أو أعيد بناؤها. استنادًا إلى تصنيف البنية التحتية الذي اكتشفها يونوسات - يونيتار أثناء الكشف عن الأقمار الصناعية، تم تحديد 313 نقطة مهمة للبنية التحتية الرئيسية وتقييم الأضرار المادية المحتملة. يعرض هذا التقرير النتائج المصنفة على مستوى الحي، في حين يمكن العثور على النتائج الإجمالية على مستوى المدينة في تقرير تحليل أضرار الرقة.

1. UNHCR, April 2018, <https://www.unhcr.org/sy/11607-first-un-humanitarian-mission-raqqa-city-post-isis.html>

2. Save the Children, Return to Al Raqqa, June 2021

[https://resourcecentre.savethechildren.net/node/19436/pdf/sc\\_raqqa\\_area\\_based\\_report\\_final.pdf](https://resourcecentre.savethechildren.net/node/19436/pdf/sc_raqqa_area_based_report_final.pdf)

3. HNAP Mobility and Needs Monitoring Dataset, April 2021, <https://hnap.info/>

4. Ibid., Save the Children used an estimate of 270,000-330,000 while HNAP gave a moderate estimate of 153,000.

5. Findings on infrastructure should be considered indicative as no ground-level validation of damage or rehabilitation was conducted.

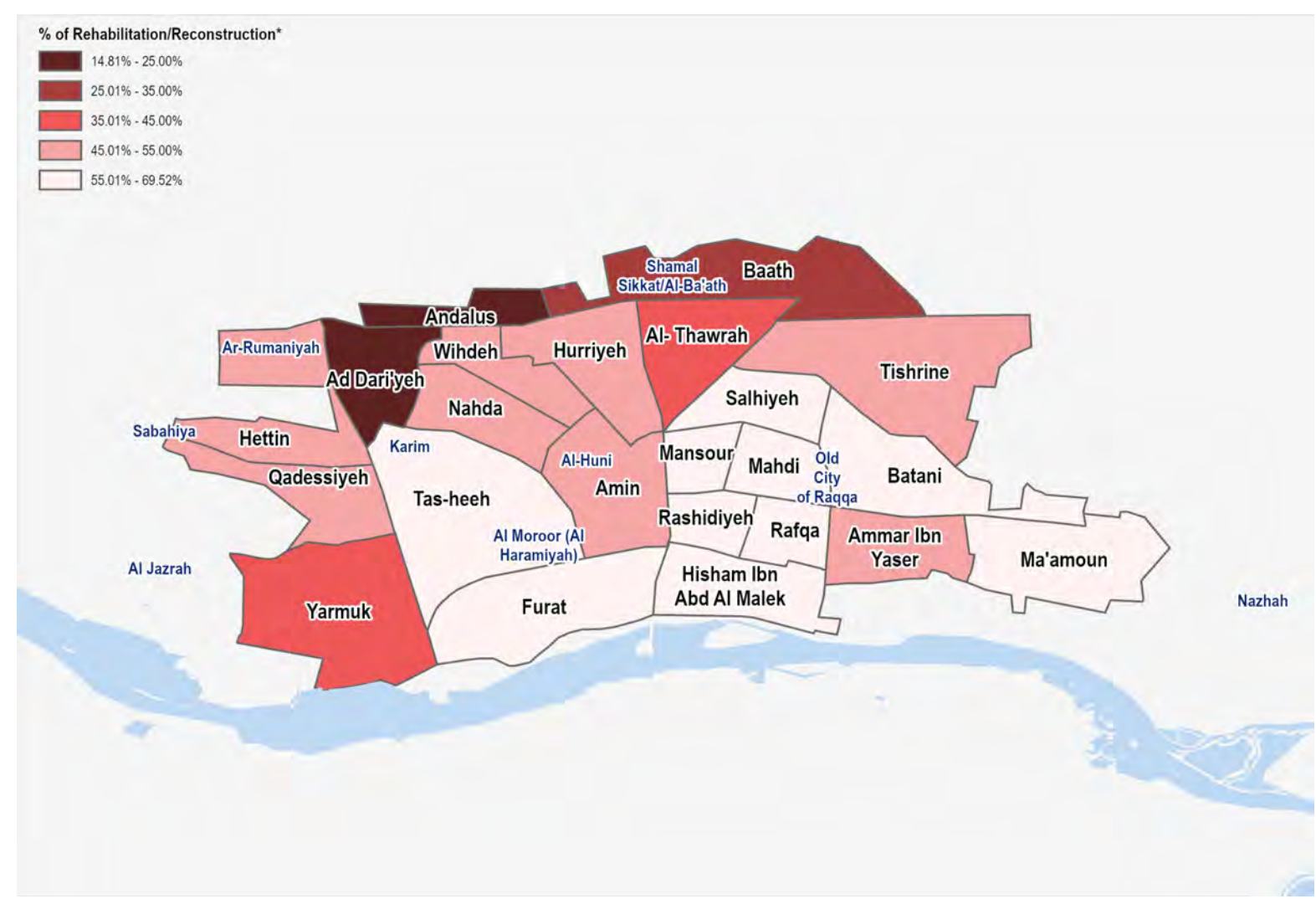
6. Ar-Raqqa Damage Analysis report April 2021. [https://www.impact-repository.org/document/reach/1d61c8a5/REACH\\_SYR\\_Ar\\_Raqqa\\_Damage\\_Report\\_April\\_2021.pdf](https://www.impact-repository.org/document/reach/1d61c8a5/REACH_SYR_Ar_Raqqa_Damage_Report_April_2021.pdf)



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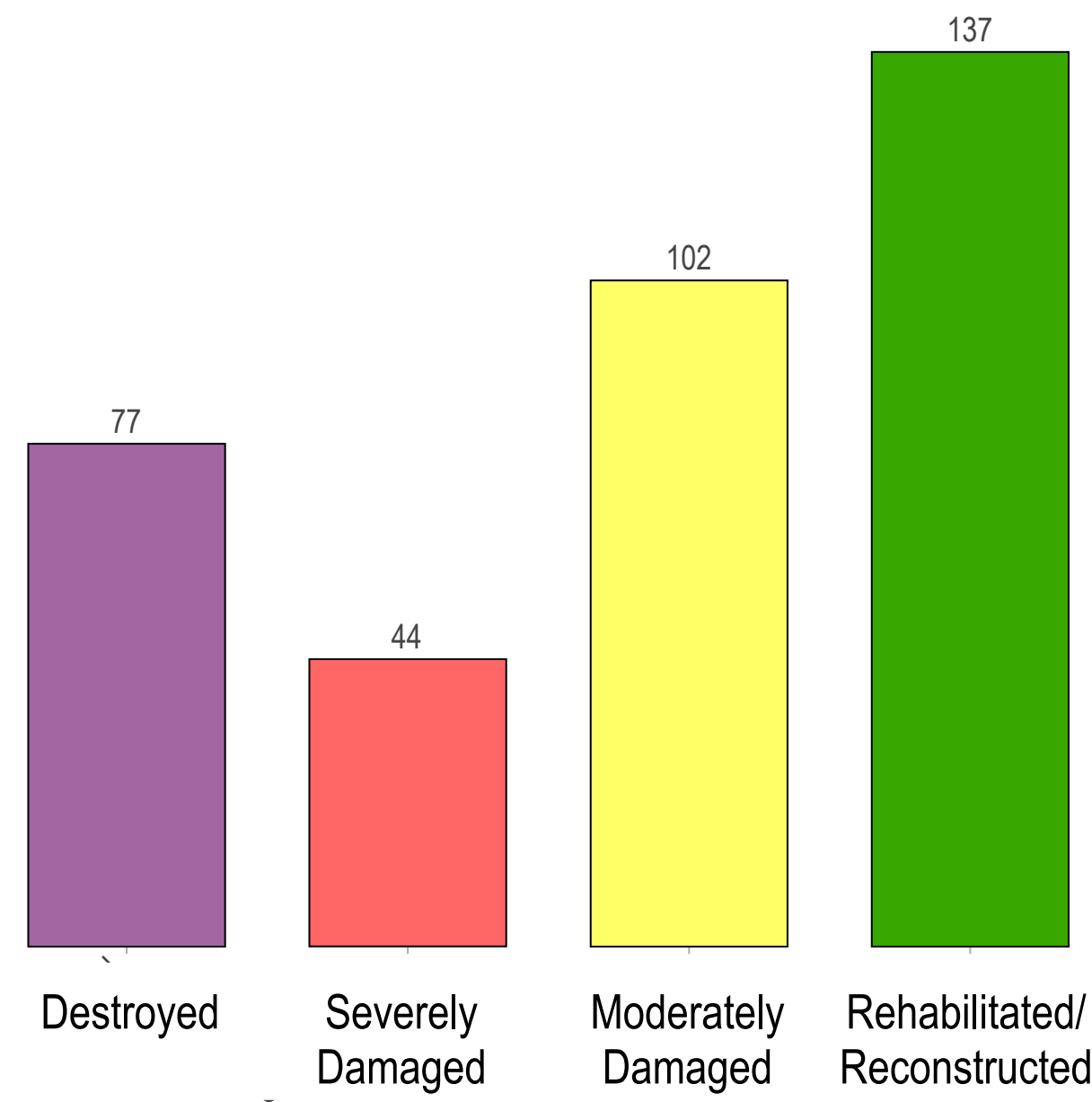
## Ar-Raqqa City - Neighbourhood Reference Map



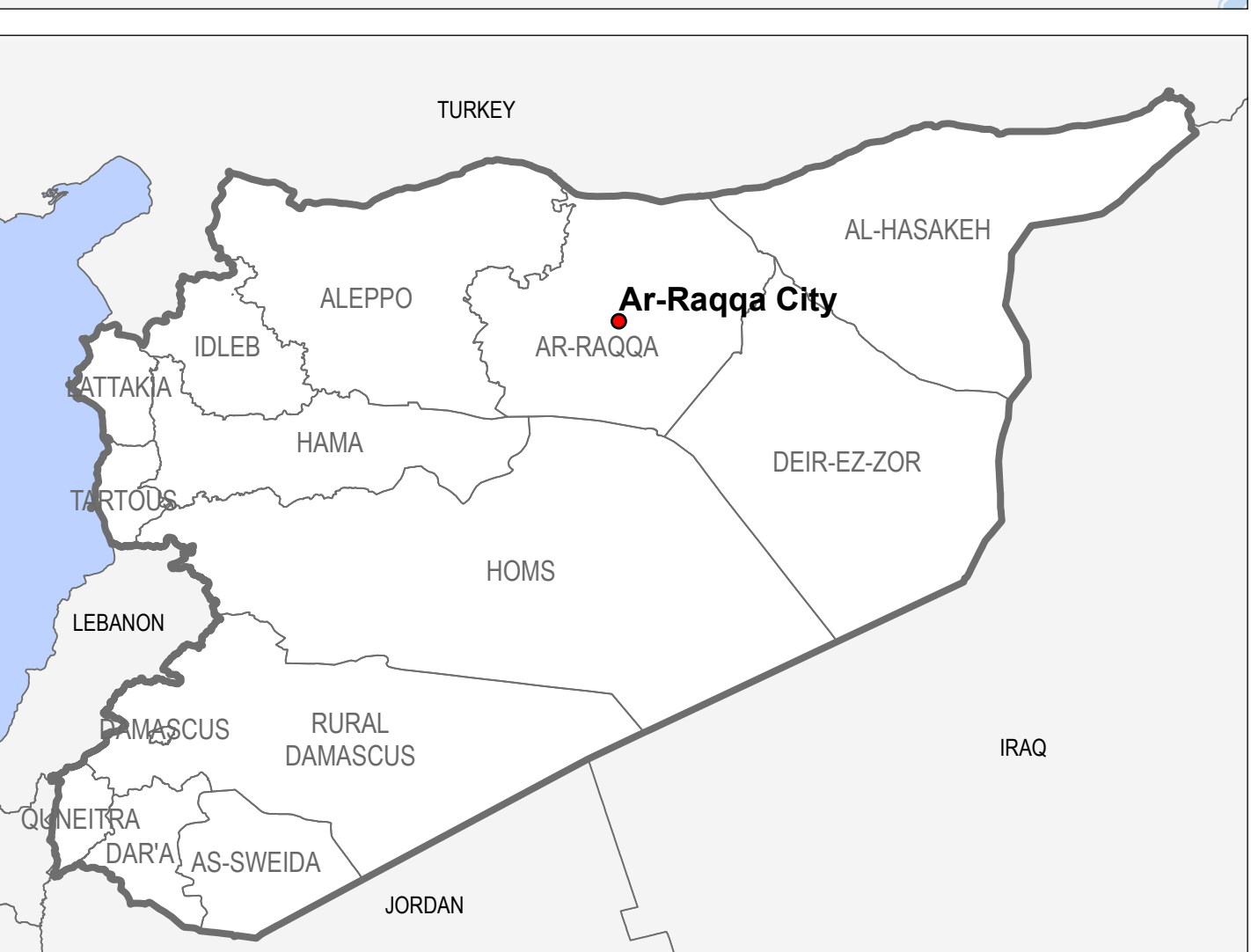
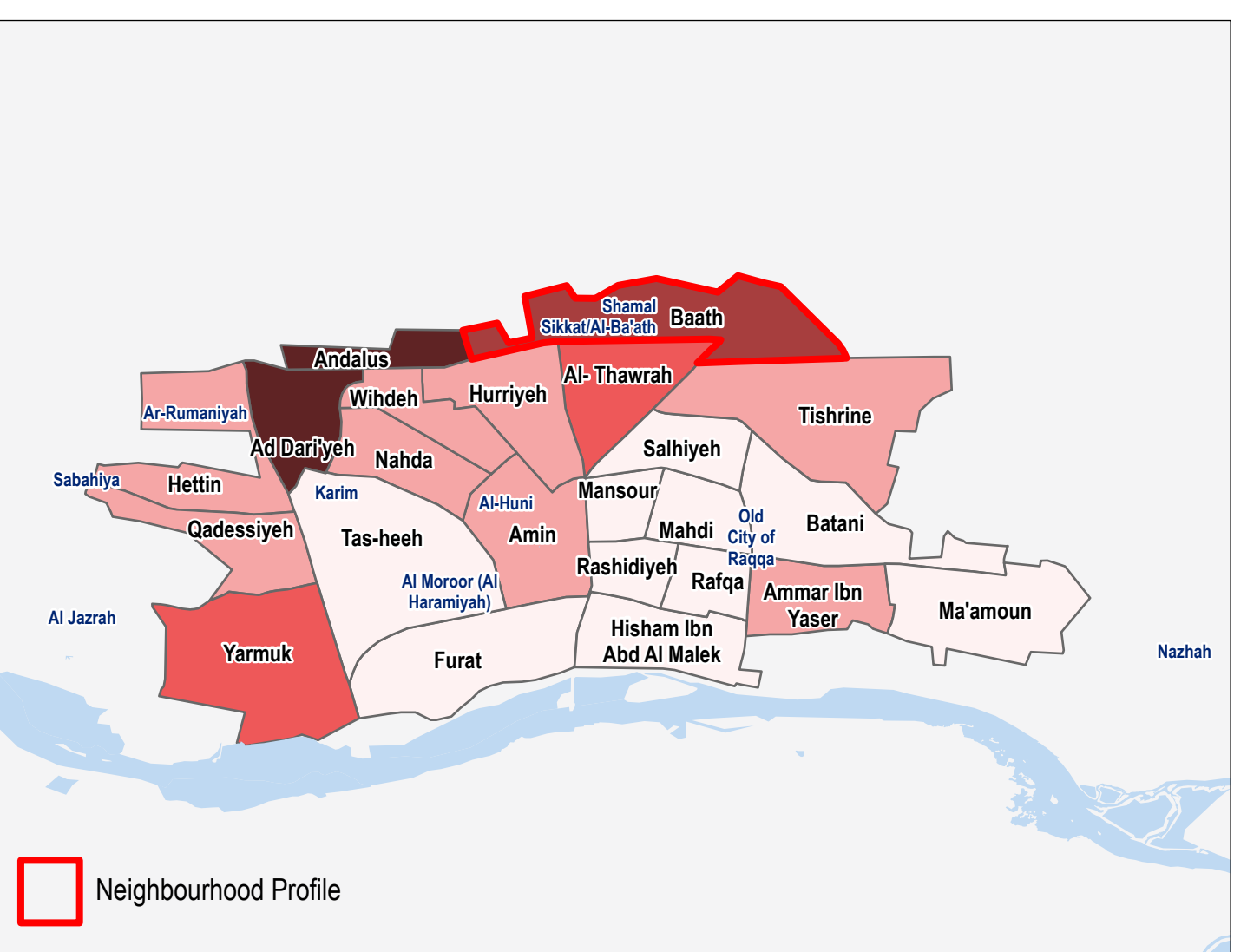
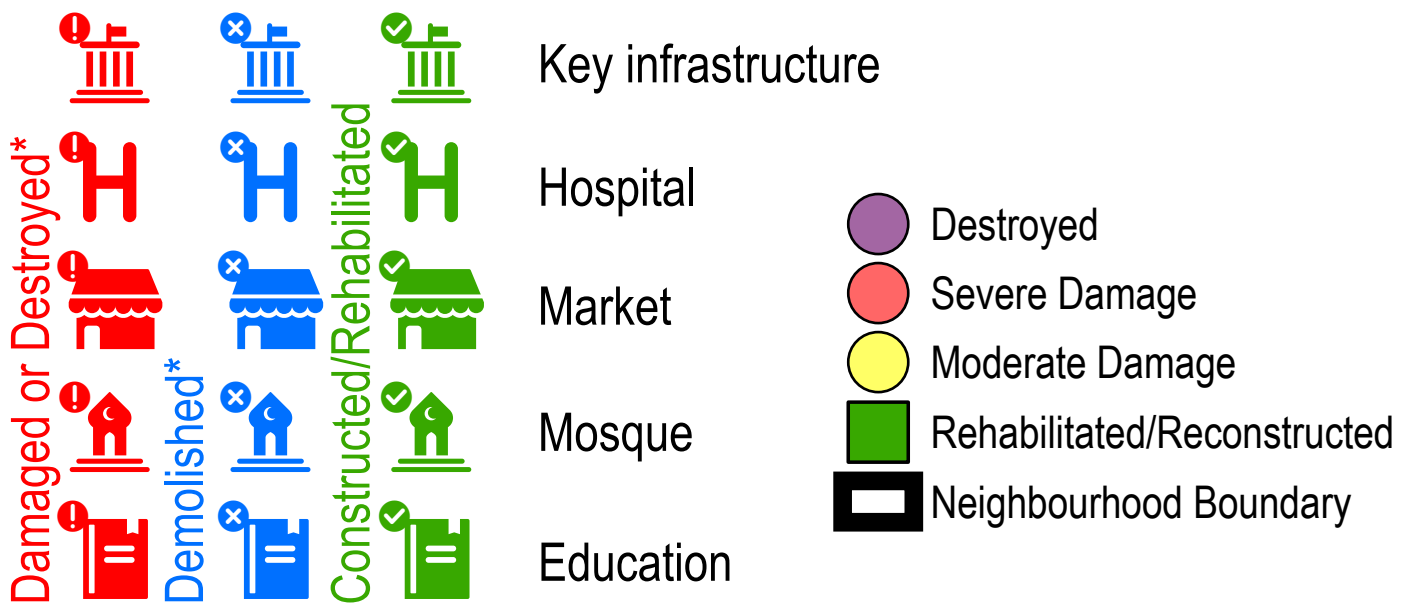
\* The percentage of rehabilitation/reconstruction represents the percentage of buildings that are rehabilitated/reconstructed versus buildings that are still damaged/destroyed. The higher the %, the more rehabilitation/reconstruction has been done since 2013.

Source: Administrative Neighbourhood Boundaries - UN OCHA  
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by REACH or the UN.

Baath Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

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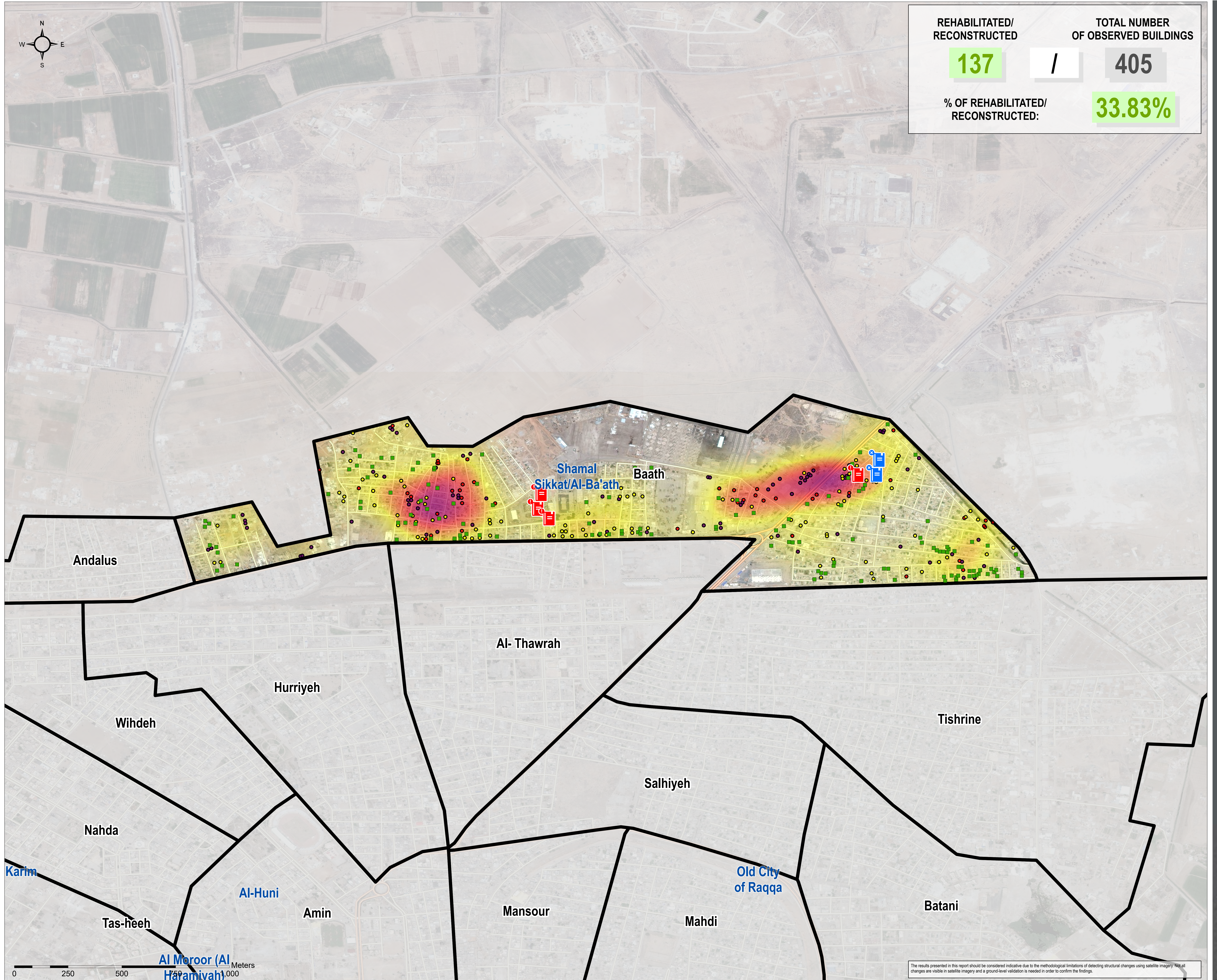
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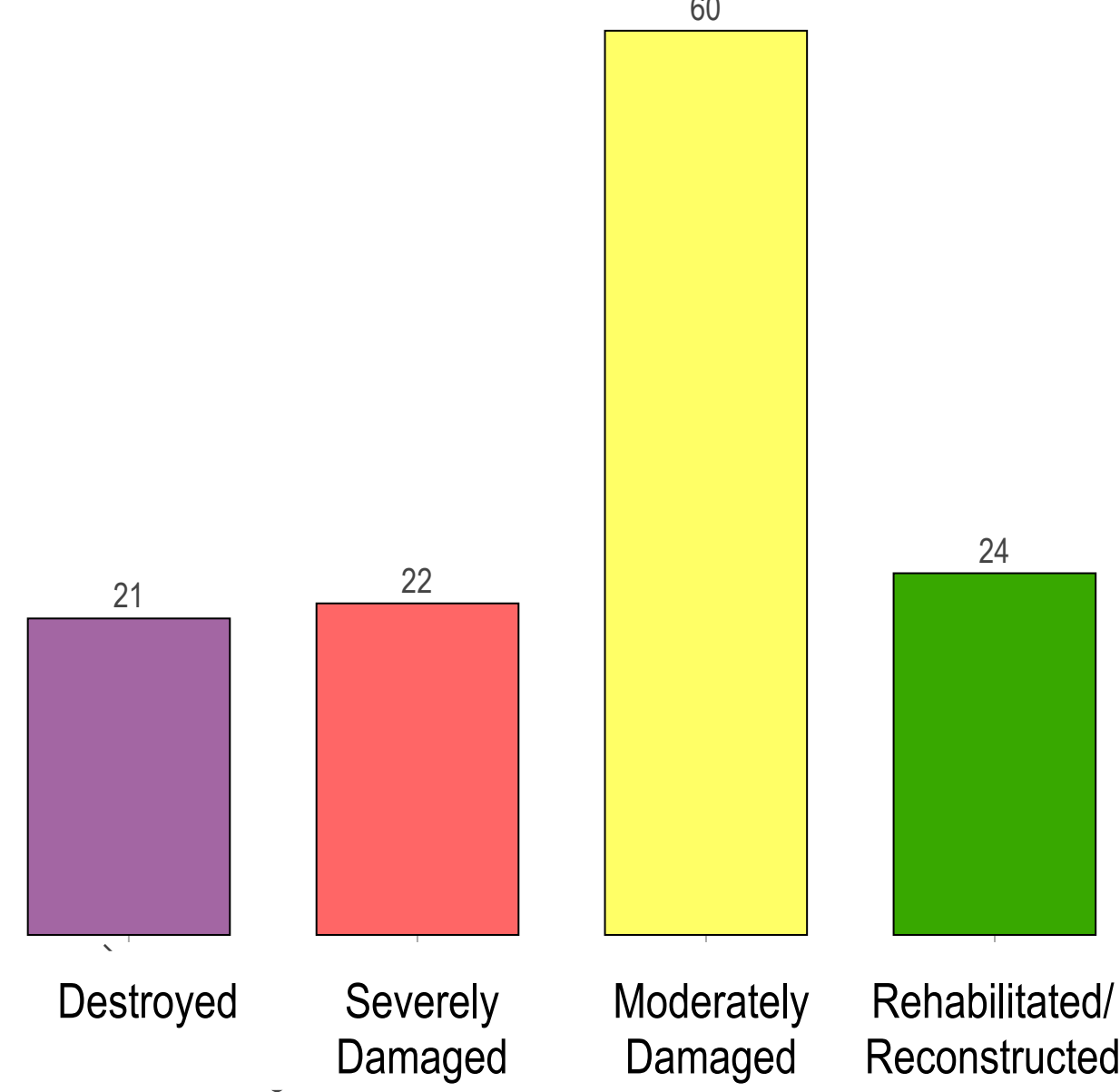


|                                       |                                       |
|---------------------------------------|---------------------------------------|
| REHABILITATED/<br>RECONSTRUCTED       | TOTAL NUMBER<br>OF OBSERVED BUILDINGS |
| <b>137</b>                            | <b>405</b>                            |
| % OF REHABILITATED/<br>RECONSTRUCTED: | <b>33.83%</b>                         |

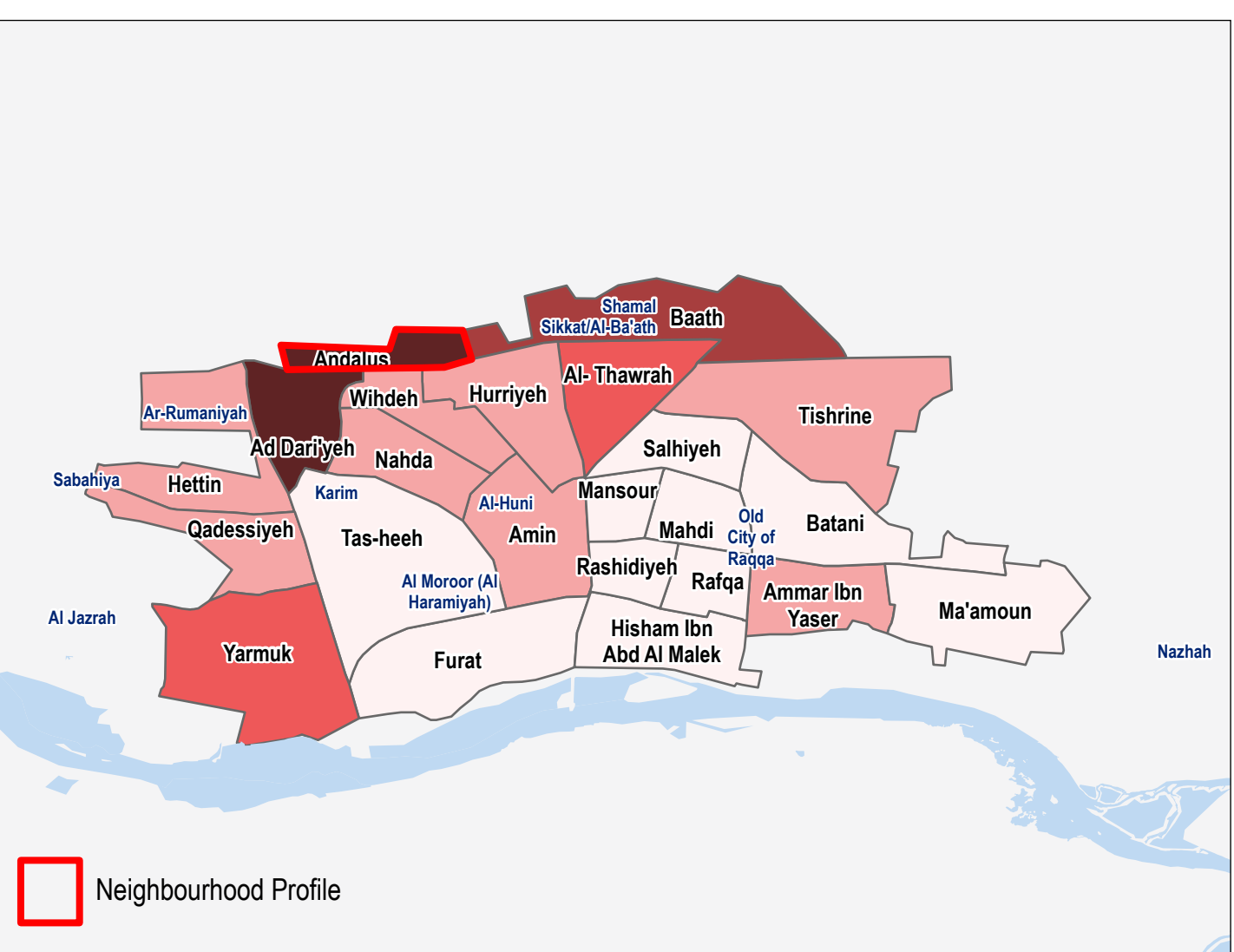
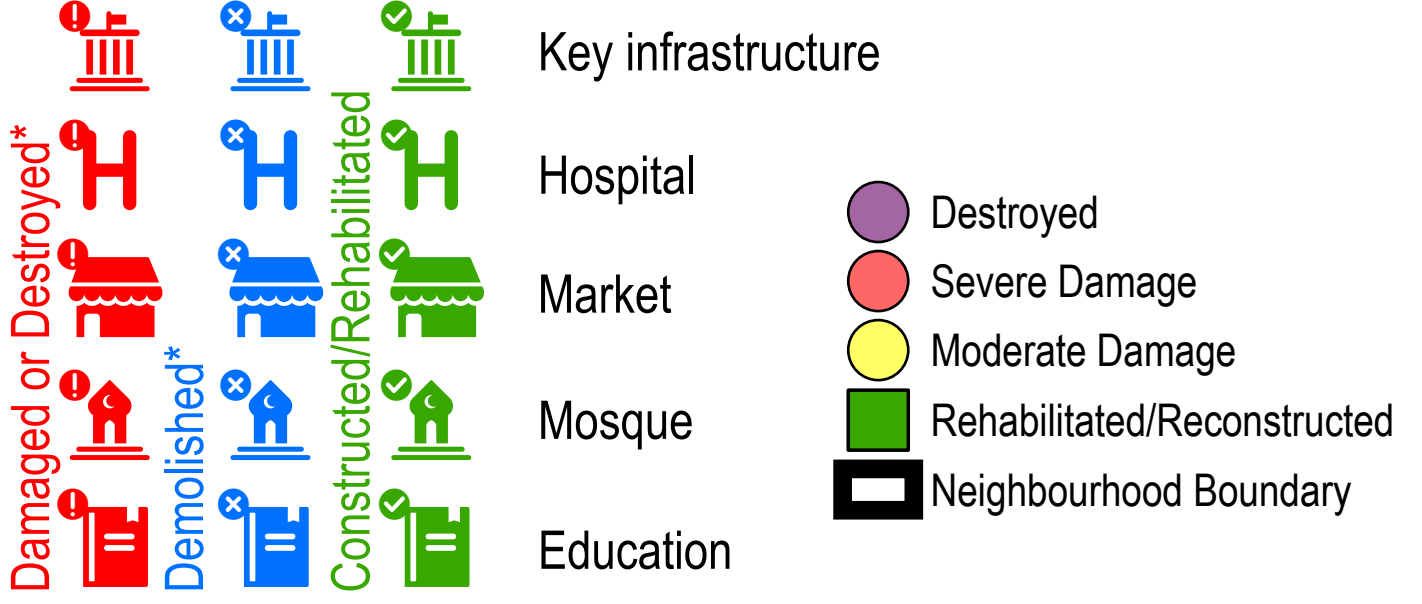


The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Andalus Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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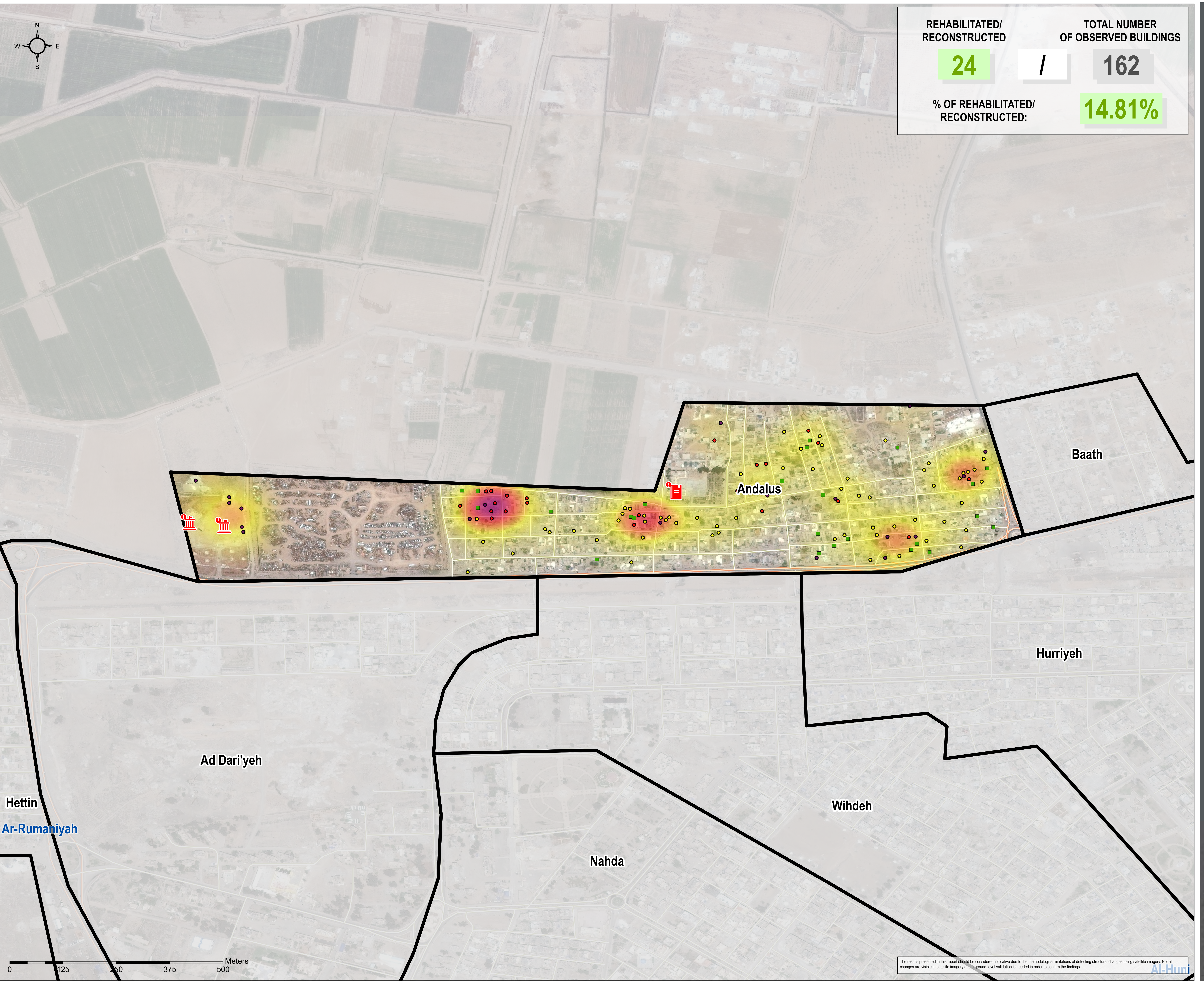
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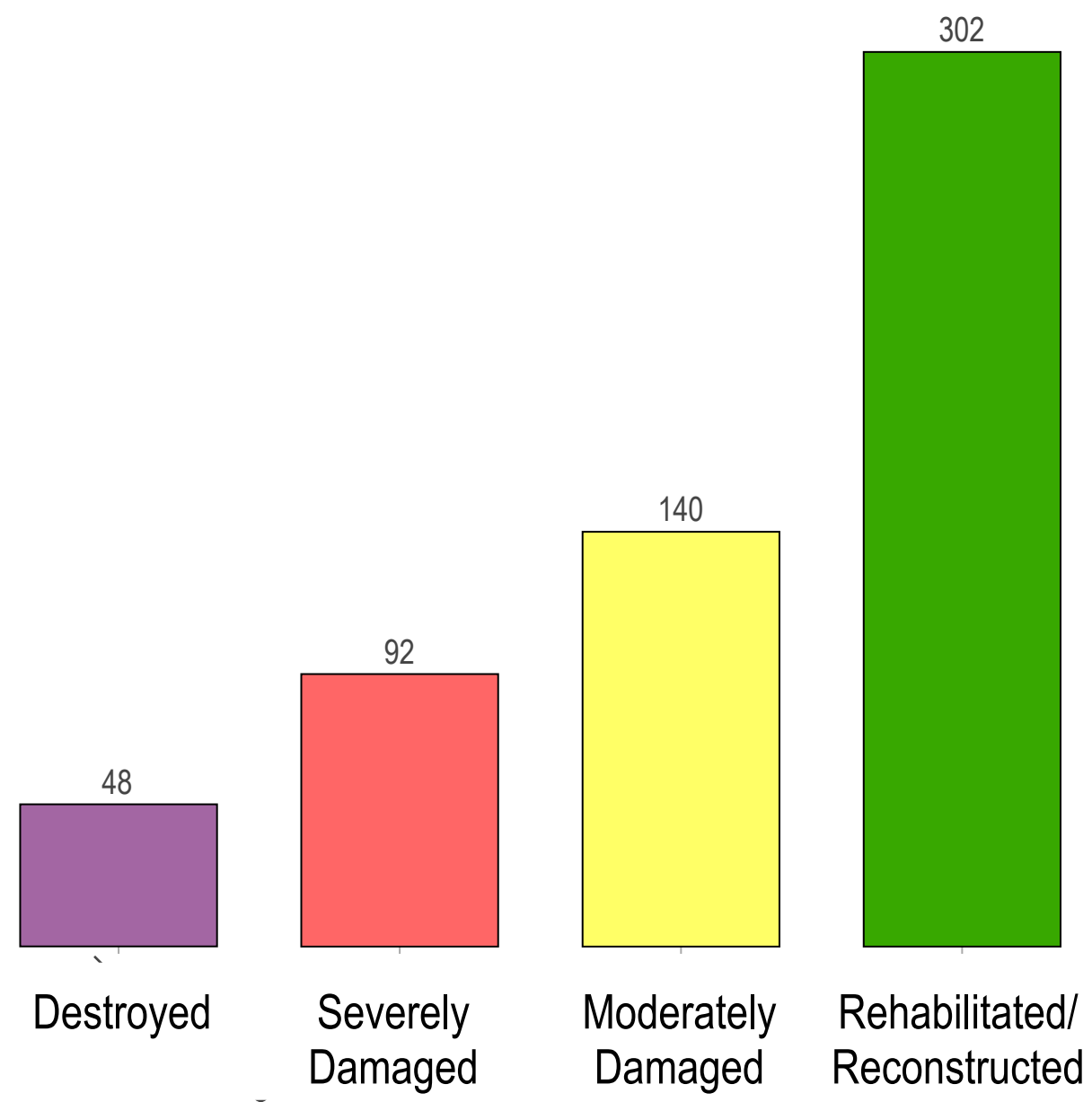


|                                   |                                    |            |
|-----------------------------------|------------------------------------|------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |            |
| <b>24</b>                         | /                                  | <b>162</b> |
| % OF REHABILITATED/RECONSTRUCTED: | <b>14.81%</b>                      |            |



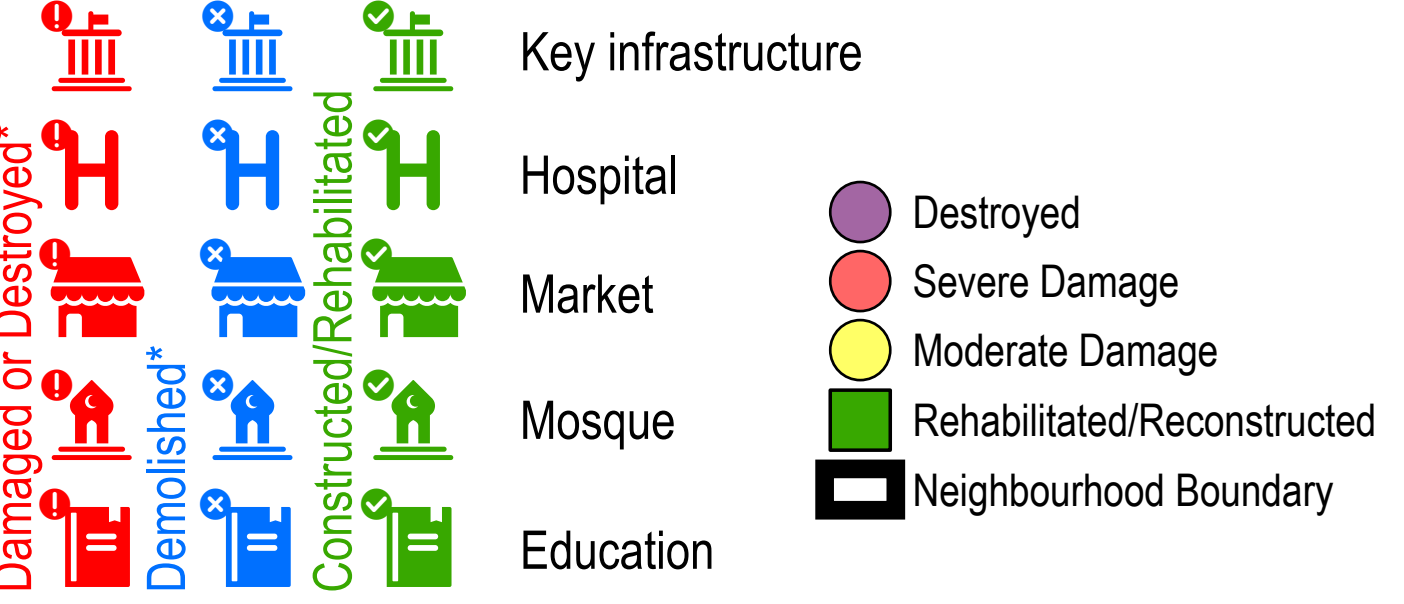
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Al- Thawrah Damage Counts, by # of identified structures

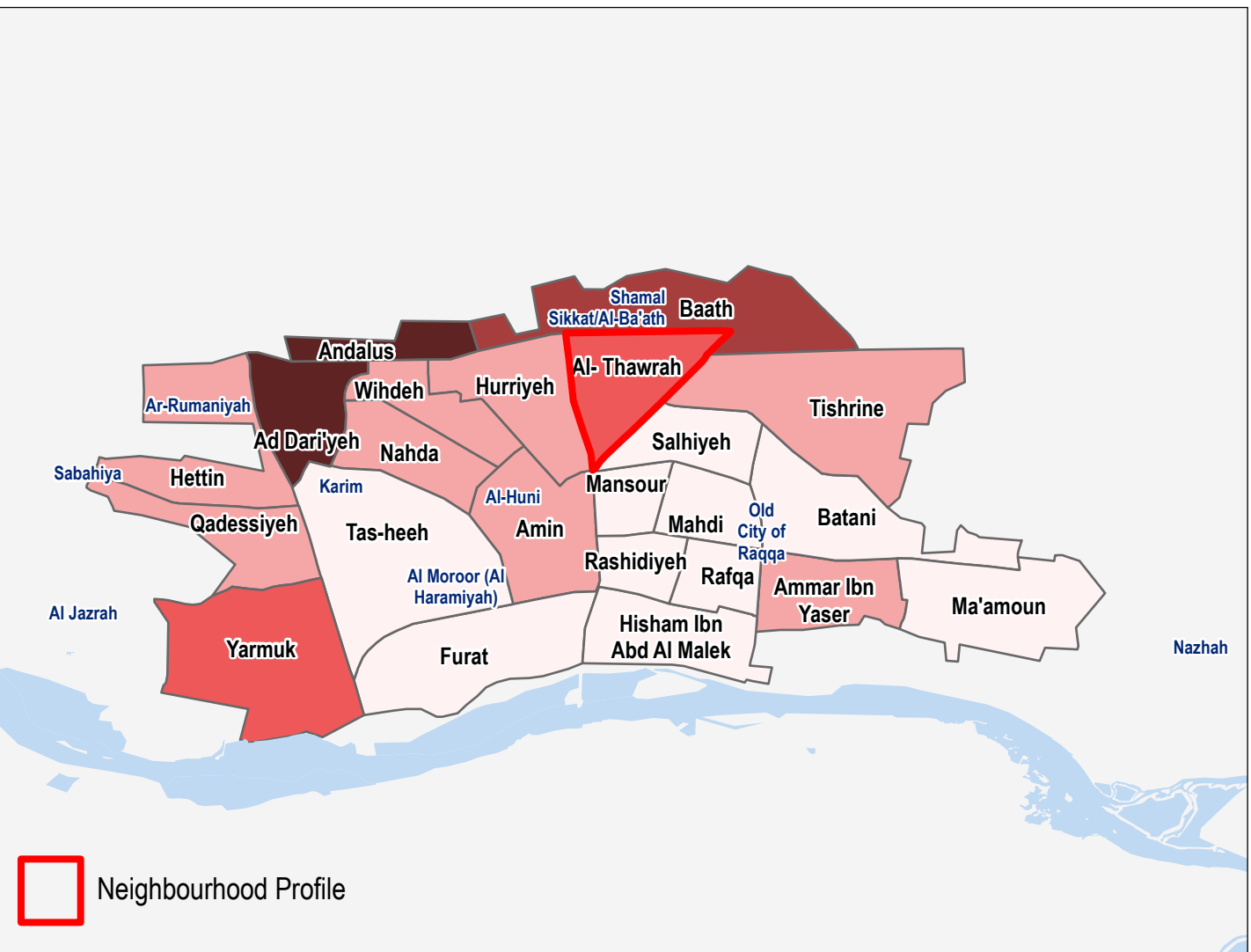
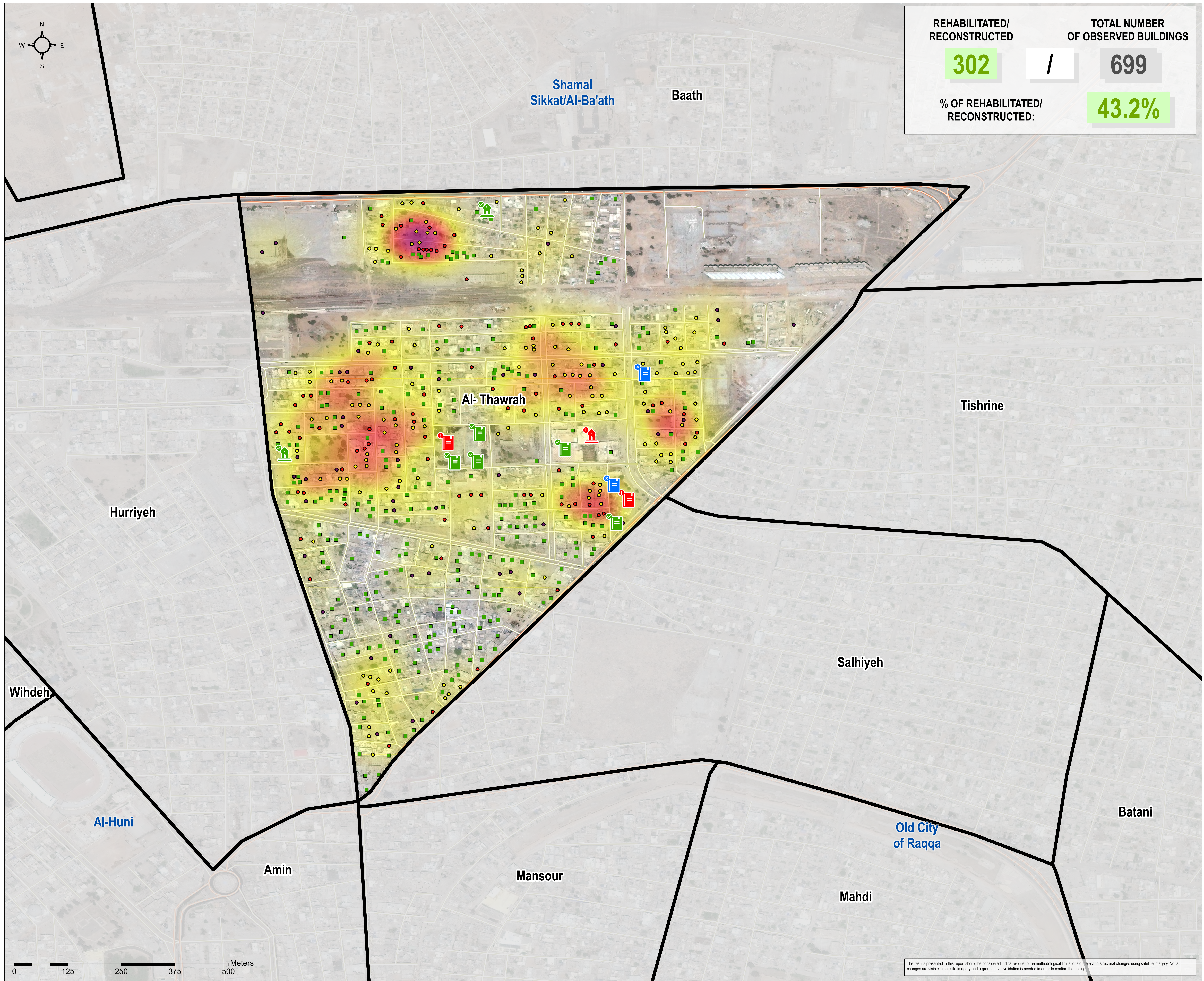


High Damage Severity Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



| REHABILITATED/ RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
|------------------------------------|------------------------------------|
| 302                                | 699                                |
| /                                  |                                    |
| % OF REHABILITATED/ RECONSTRUCTED: | 43.2%                              |



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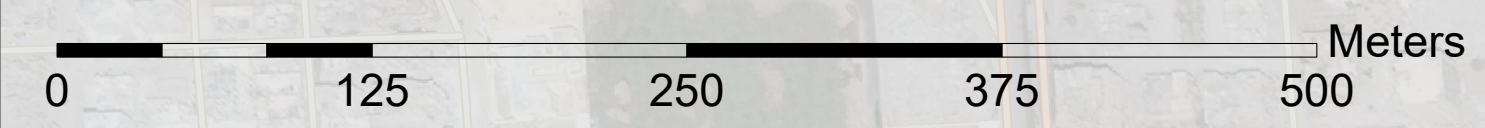
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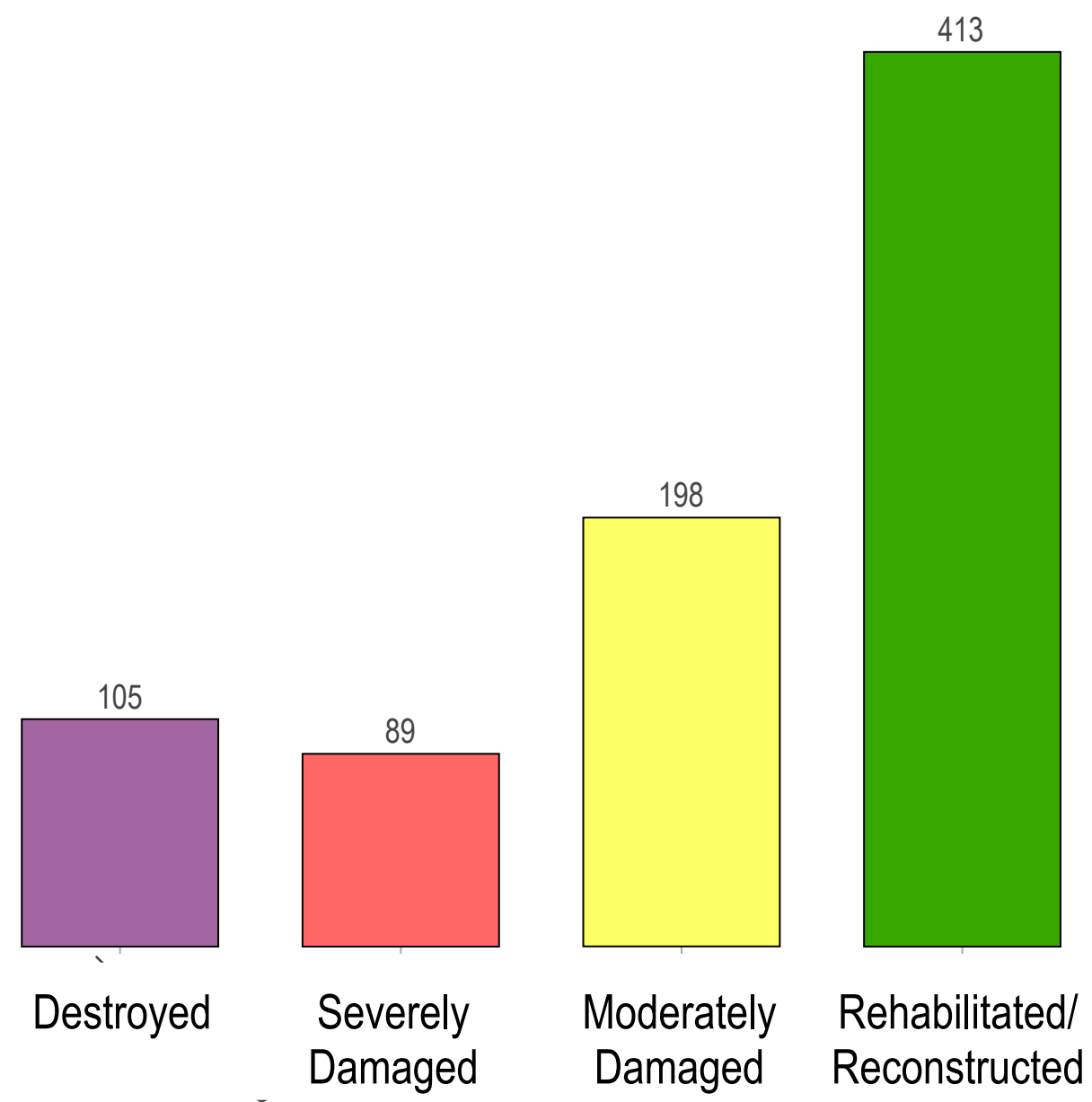
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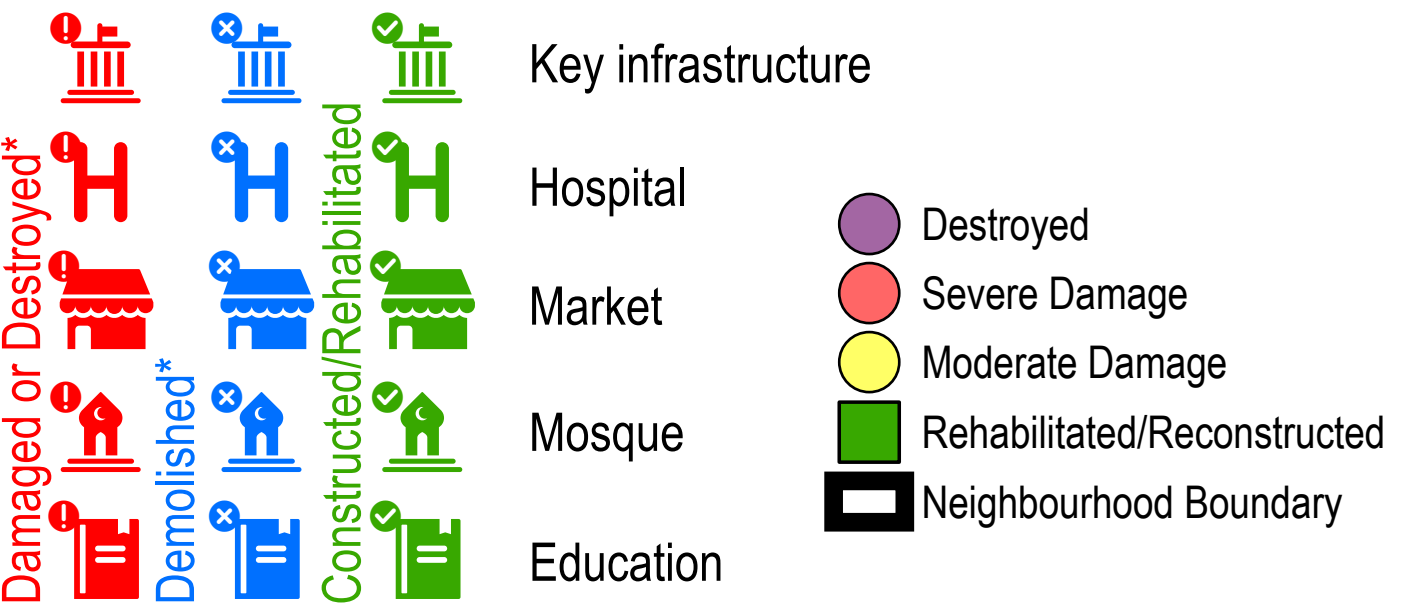
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Hurriyeh Damage Counts, by # of identified structures

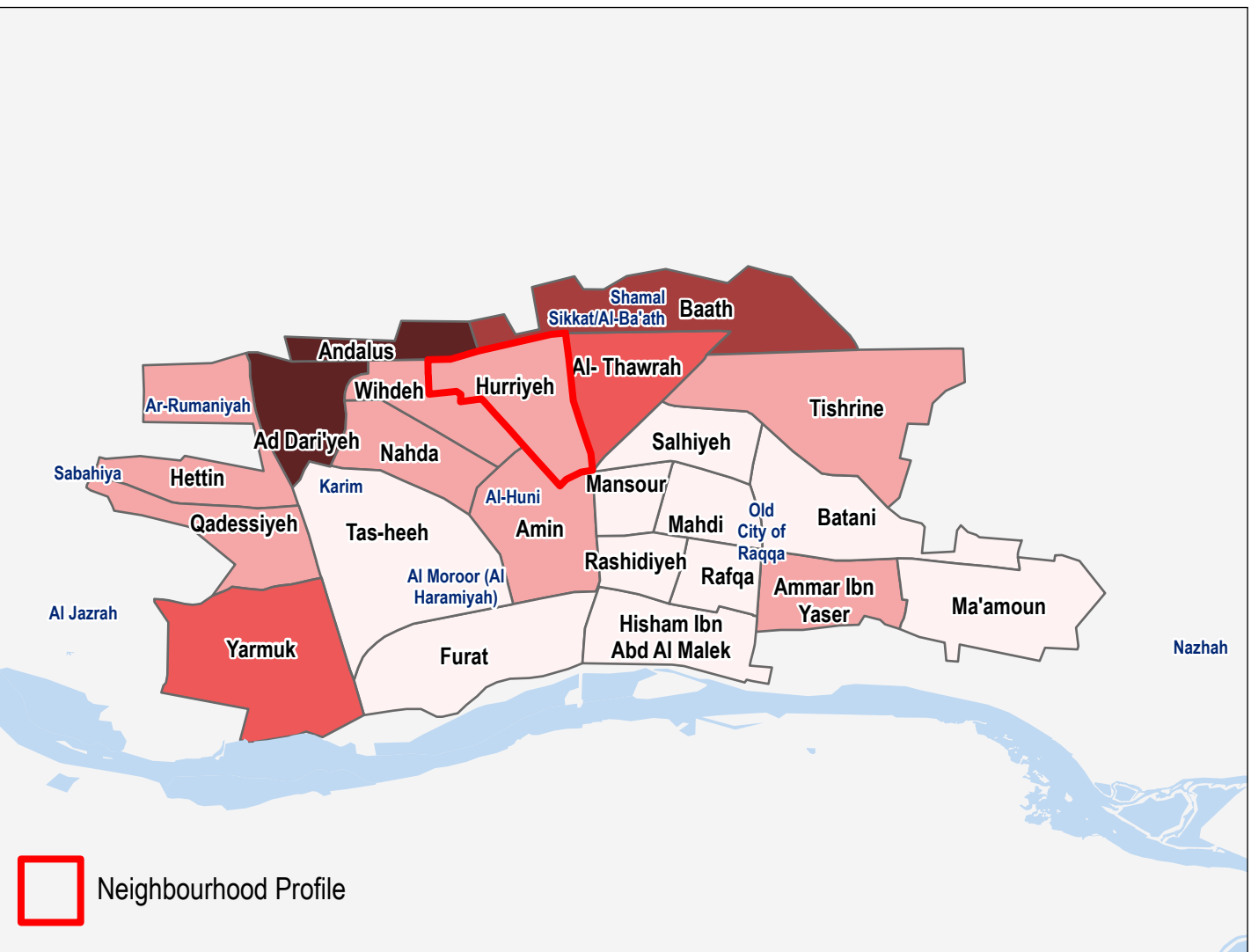
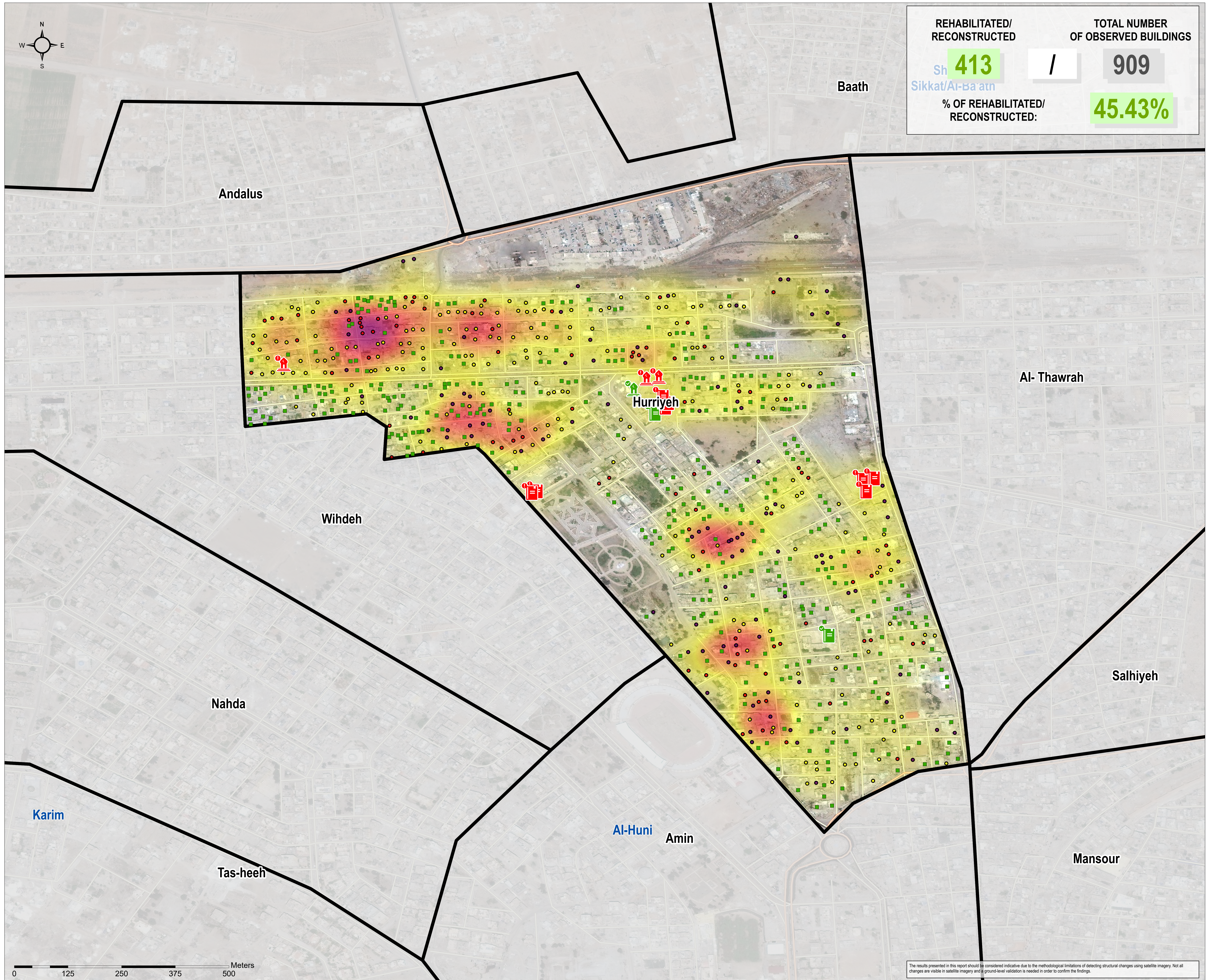


High Damage Severity / Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



| REHABILITATED/RECONSTRUCTED              | TOTAL NUMBER OF OBSERVED BUILDINGS |
|--|------------------------------------|
| Sh <b>413</b><br>Sikkat/Ai-Ba'atn        | <b>909</b>                         |
| <b>% OF REHABILITATED/RECONSTRUCTED:</b> | <b>45.43%</b>                      |



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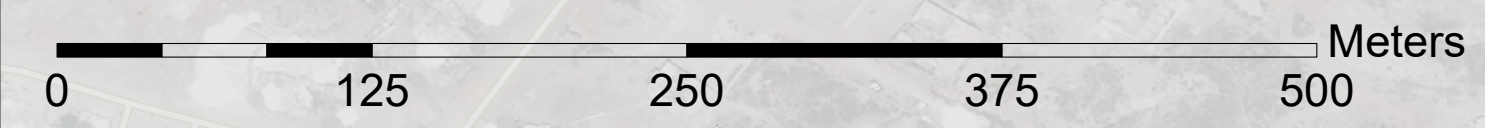
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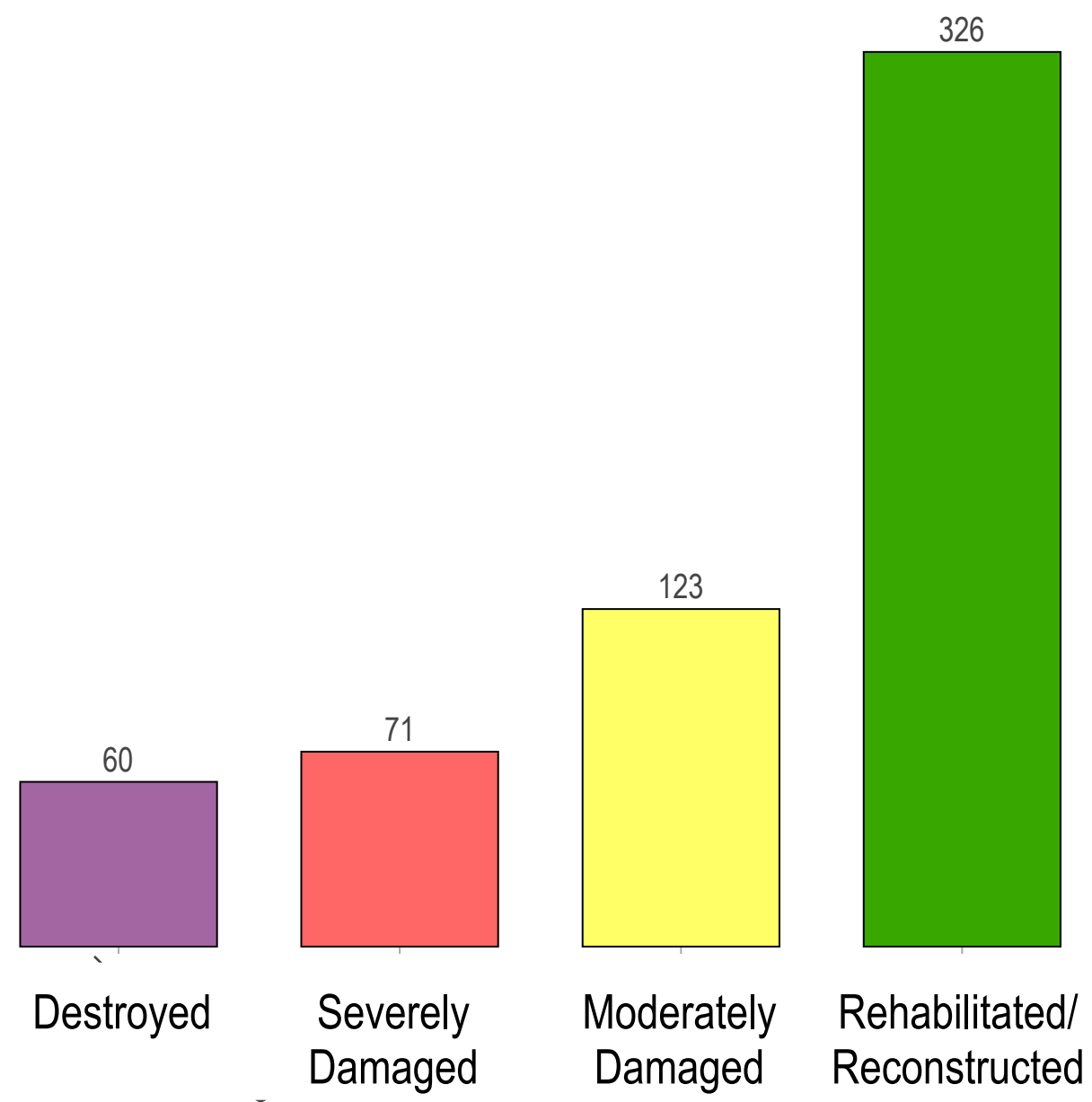
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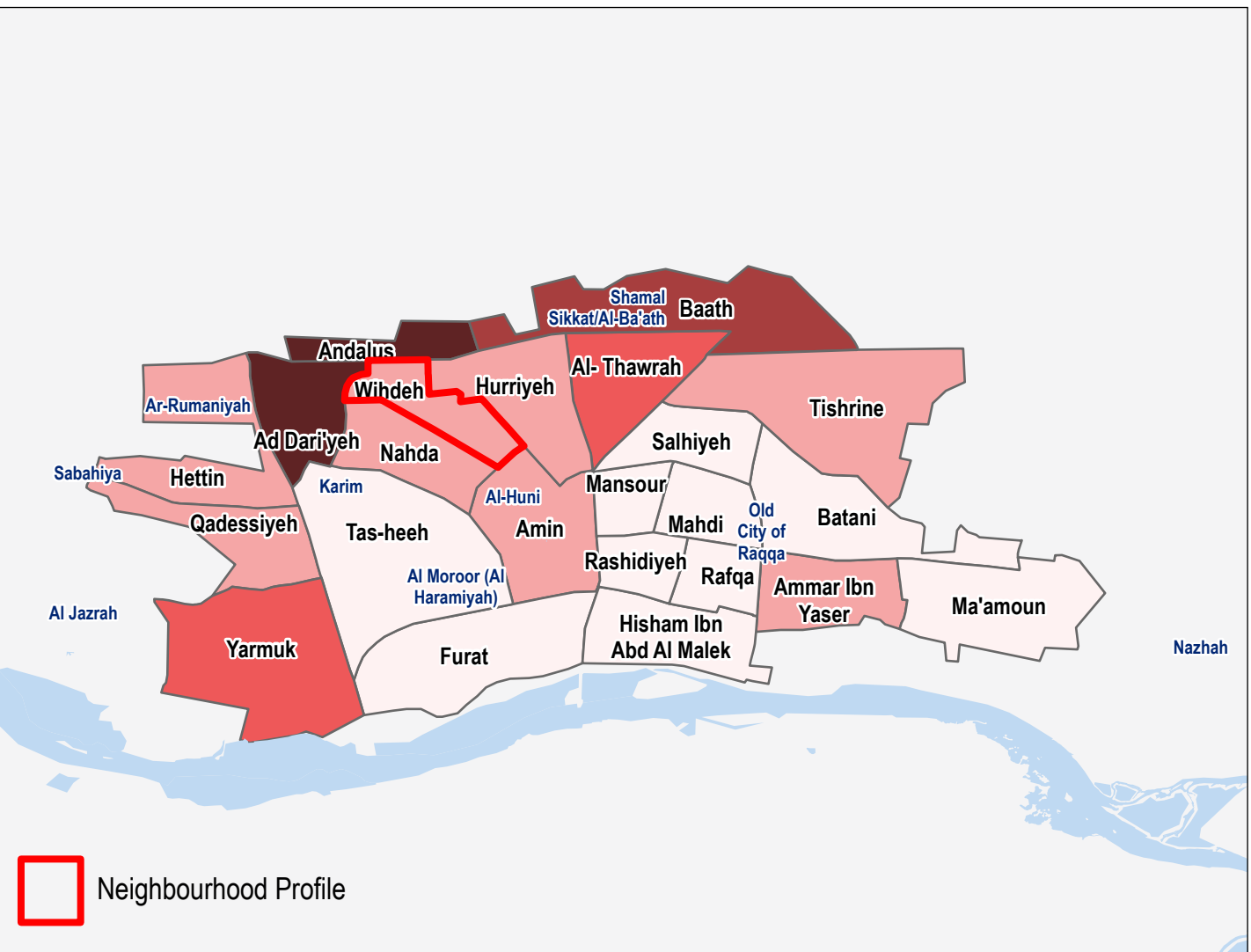
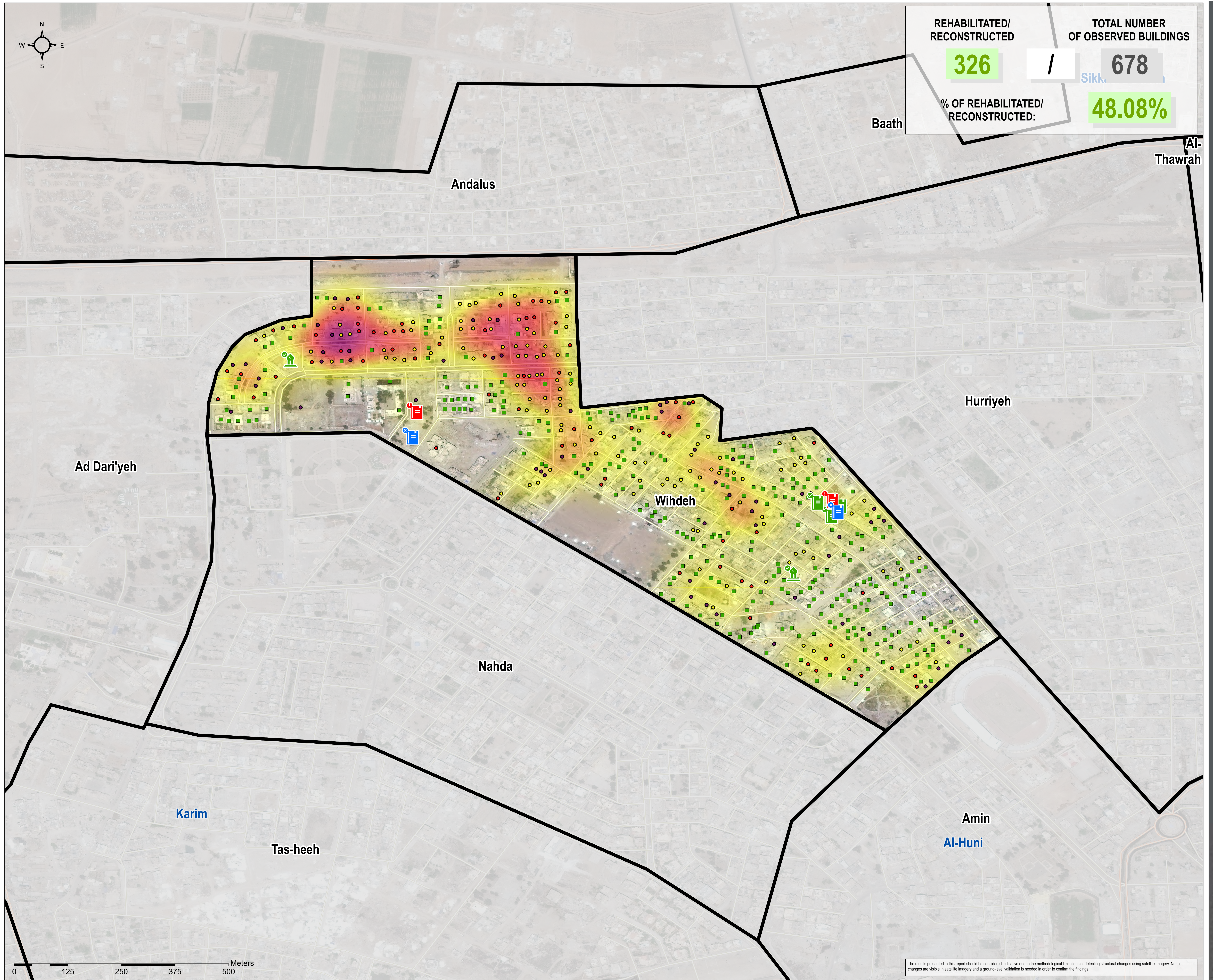
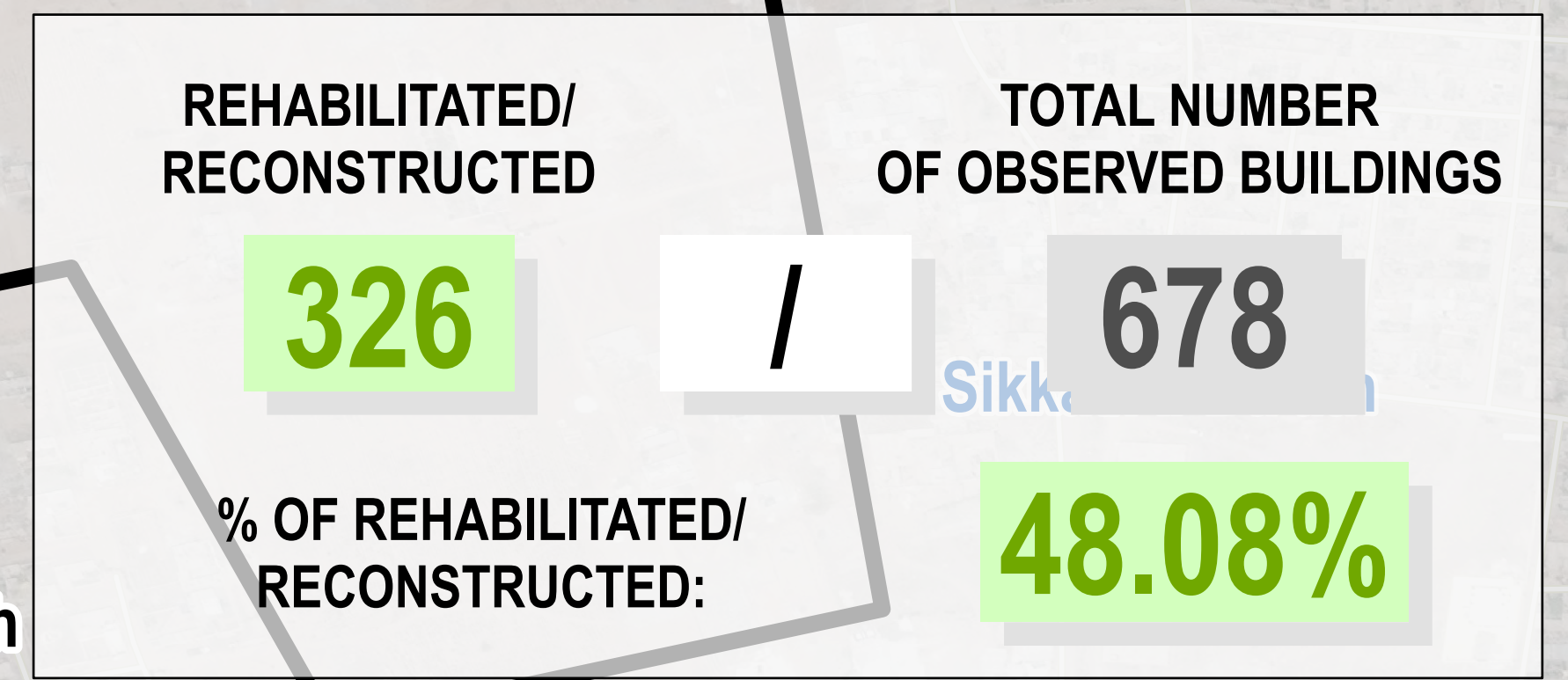
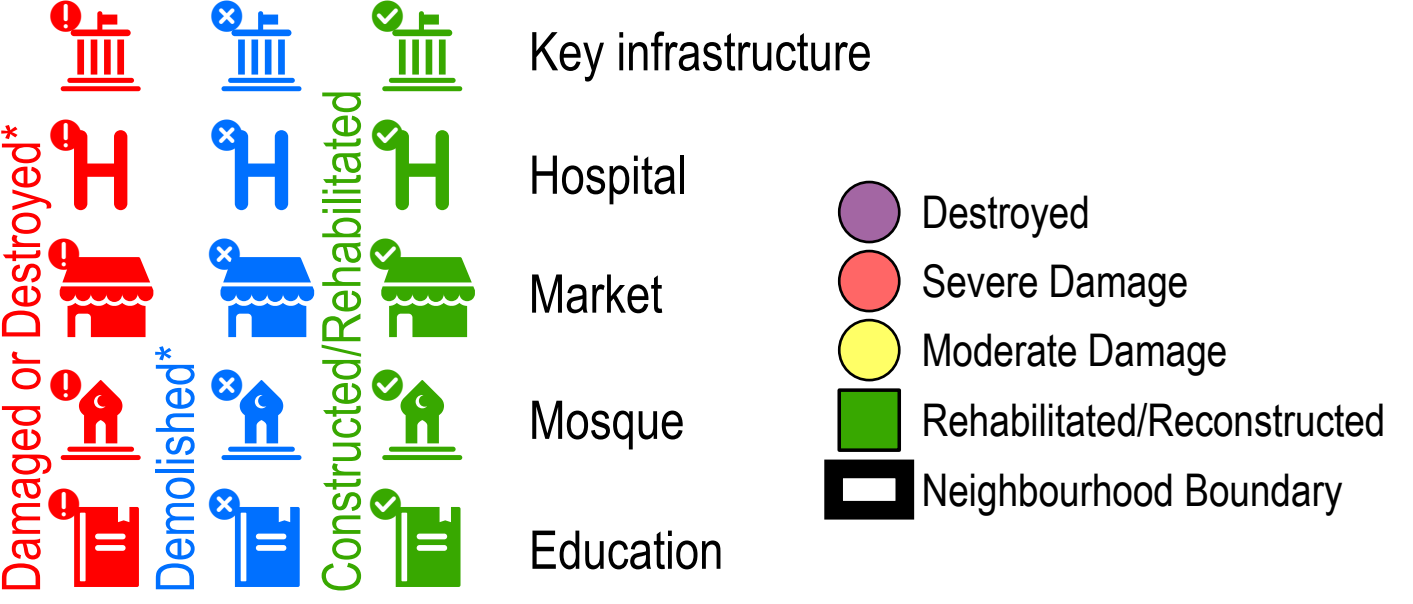
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Wihdeh Damage Counts,  
by # of identified structures



High Damage Severity Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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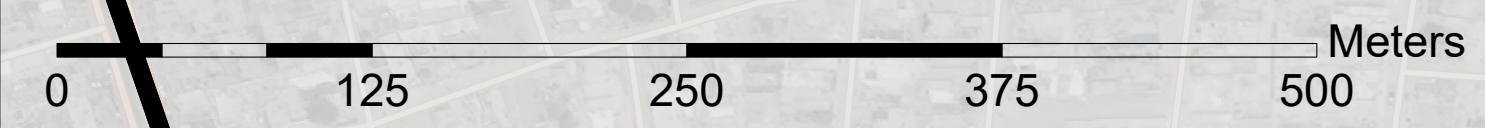
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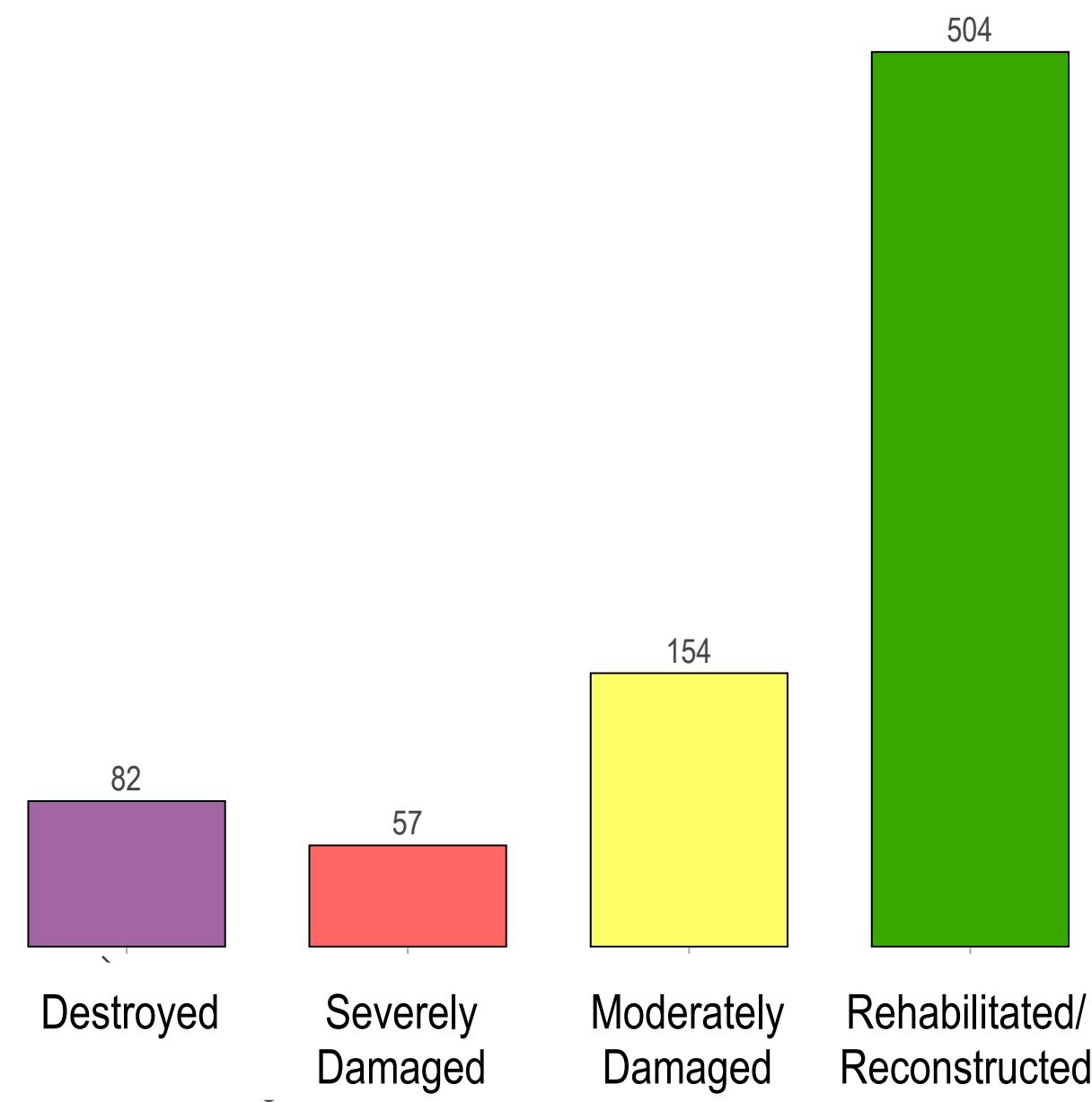
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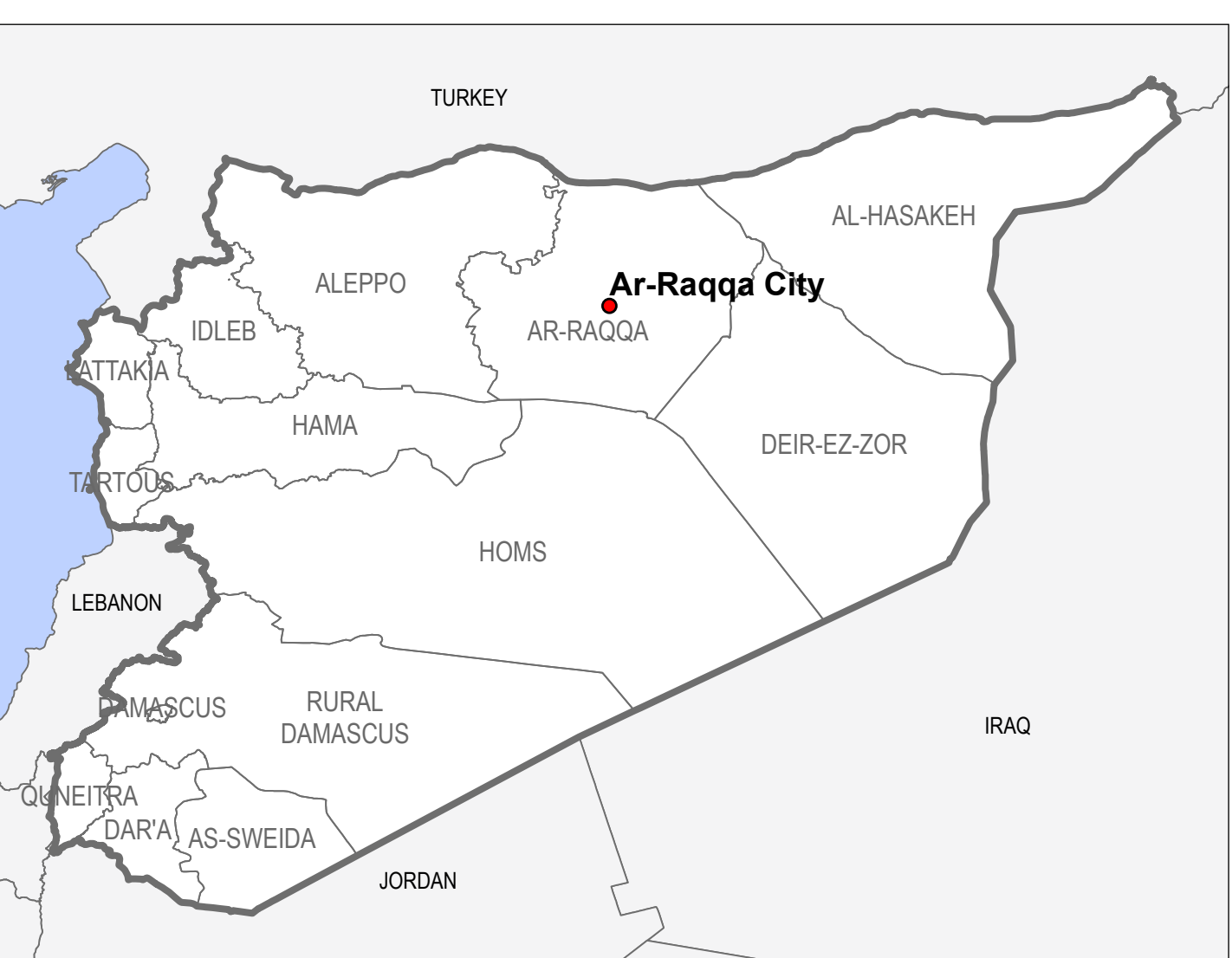
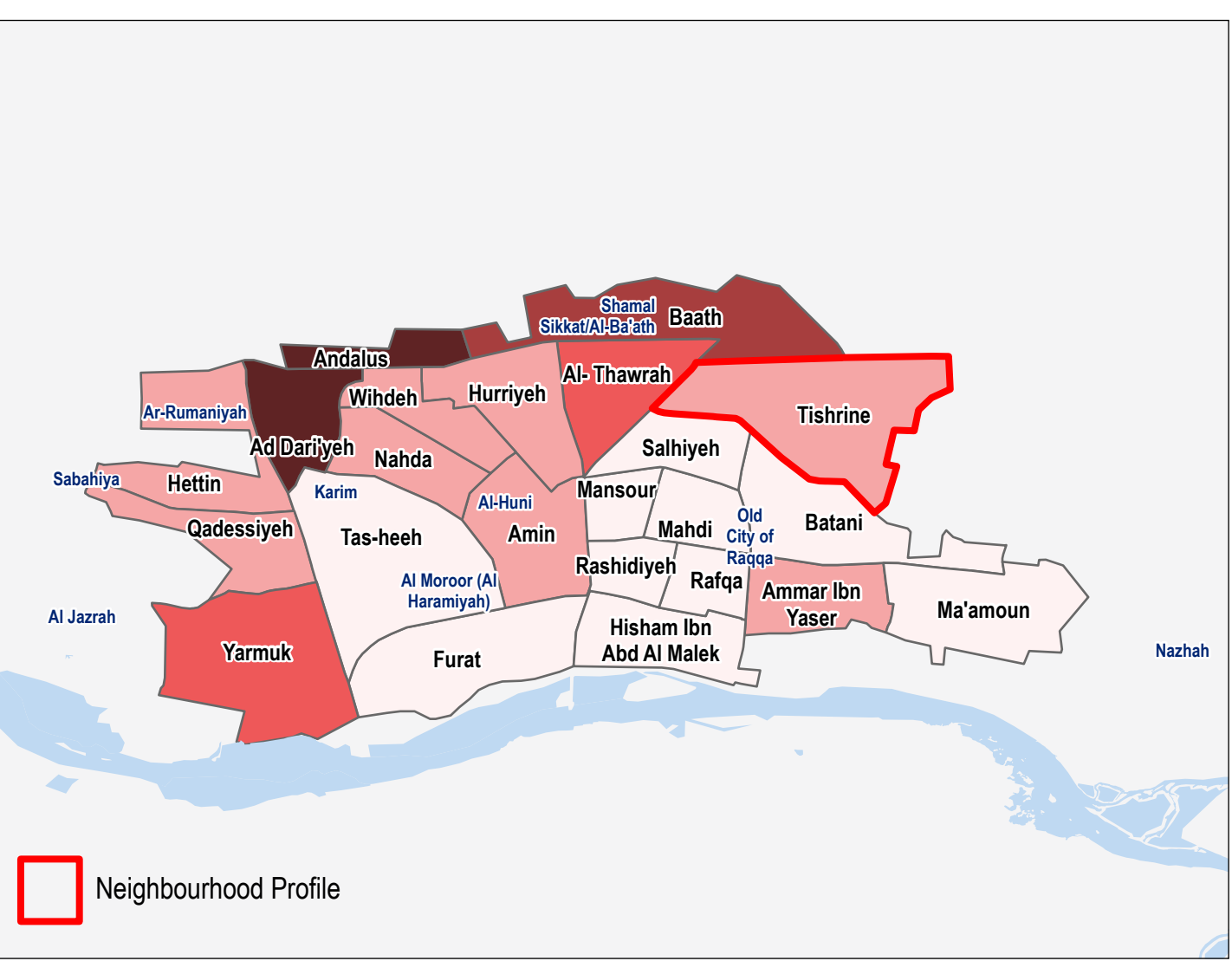
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Tishrine Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

Data sources:  
Satellite Imagery: WorldView 2 from 29 April 2021  
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Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
Satellite Data (1): WorldView 2 from 29 April 2021  
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Source: US Department of State, Humanitarian Information Unit, NextView License.

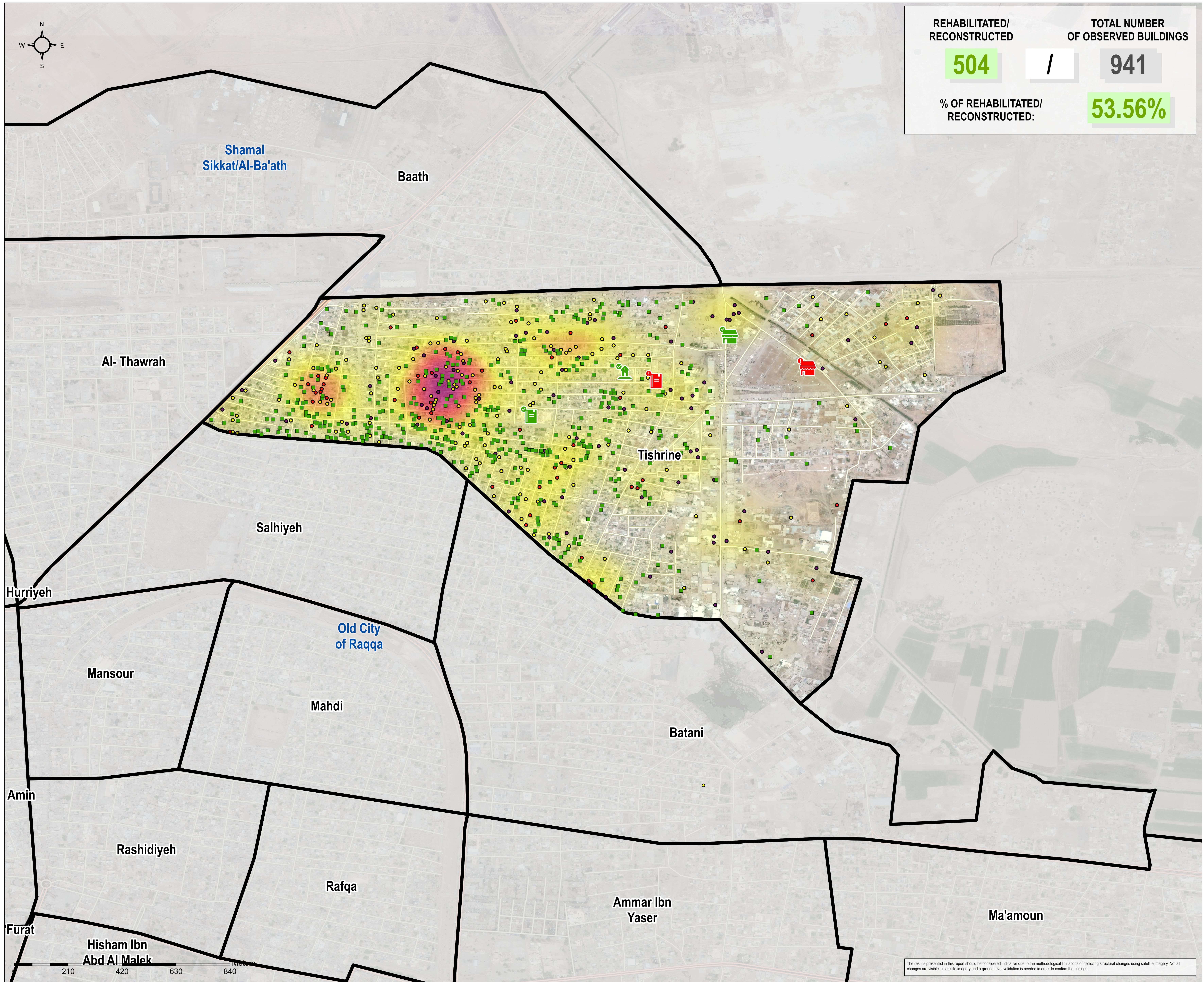
Satellite Data (2): WorldView 3 from 21 October 2017  
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Satellite Data (3): WorldView 2 from 03 February 2017  
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Satellite Data (5): WorldView 2 from 12 February 2014  
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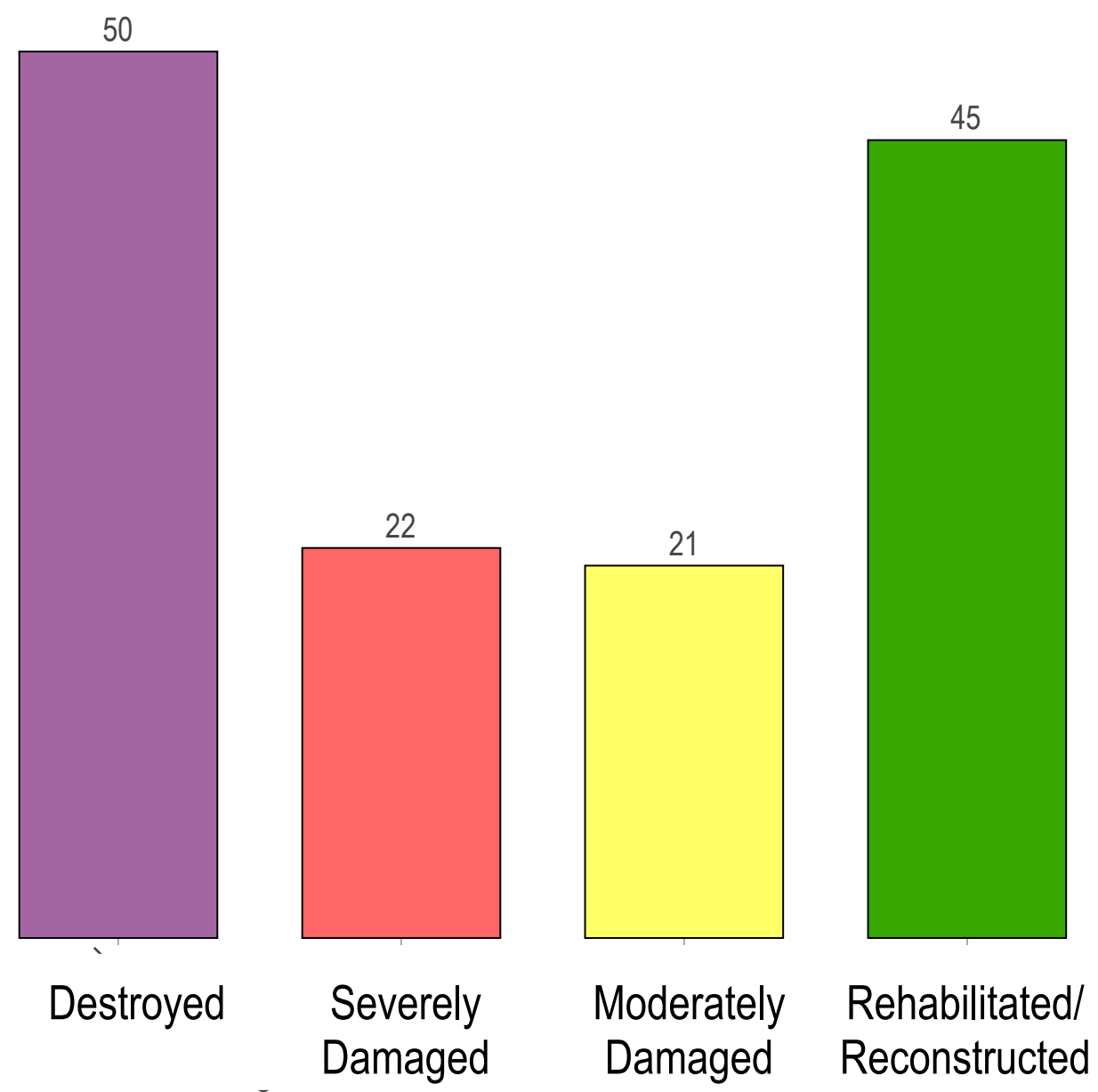
Satellite Data (5): WorldView 1 from 22 October 2013  
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Source: US Department of State, Humanitarian Information Unit, NextView License.



| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
|-----------------------------------|------------------------------------|
| 504                               | 941                                |
| /                                 |                                    |
| % OF REHABILITATED/RECONSTRUCTED: | 53.56%                             |

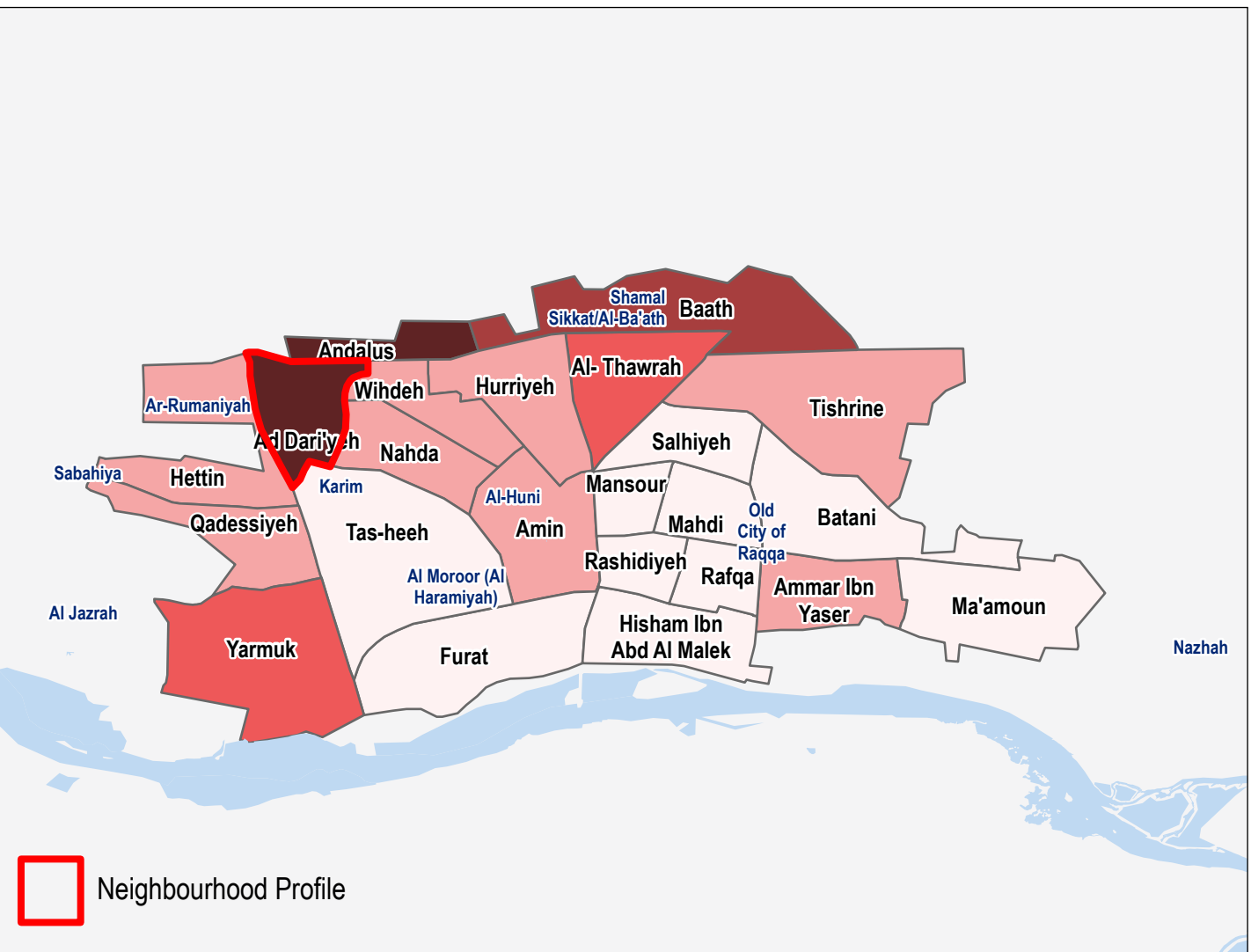
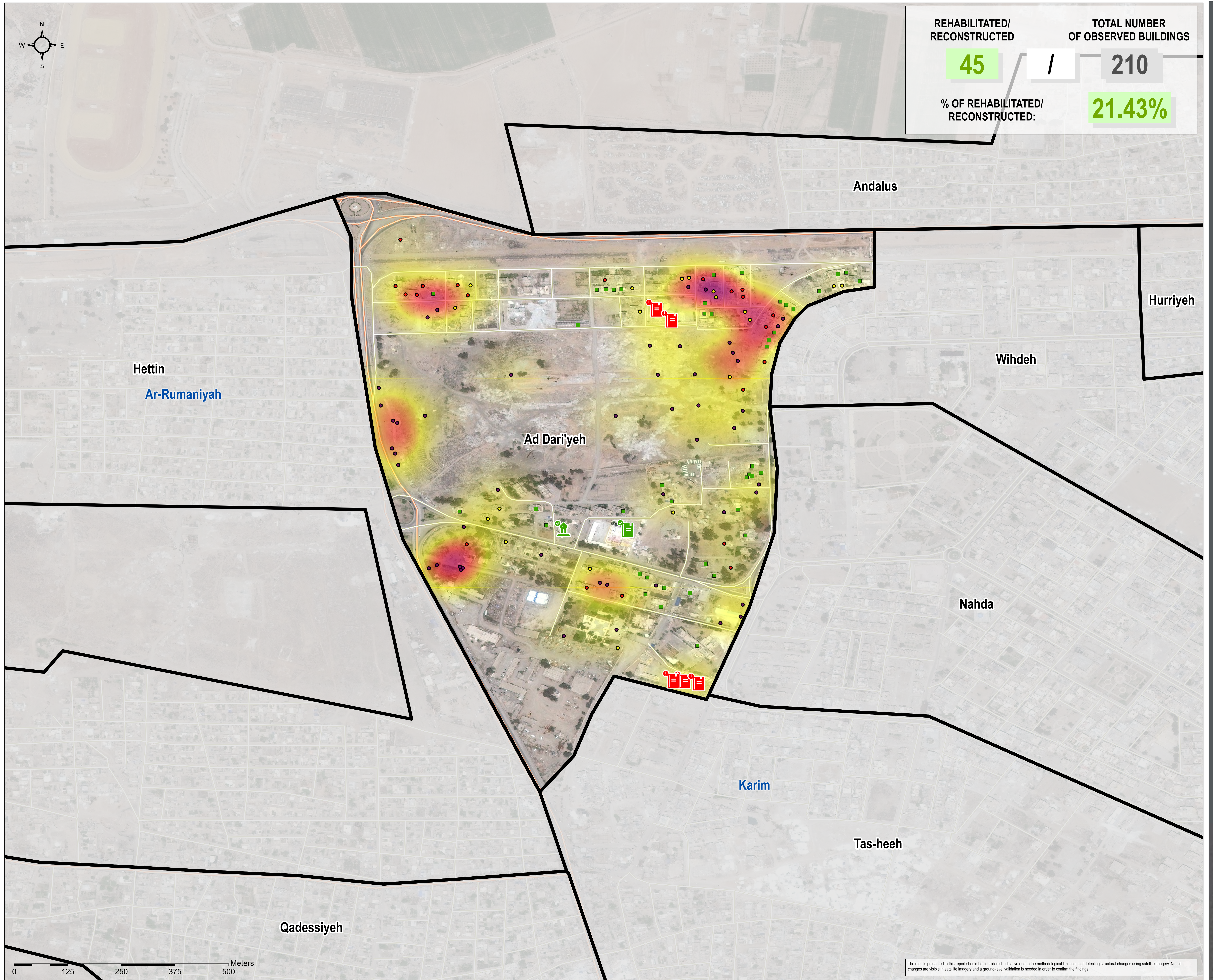
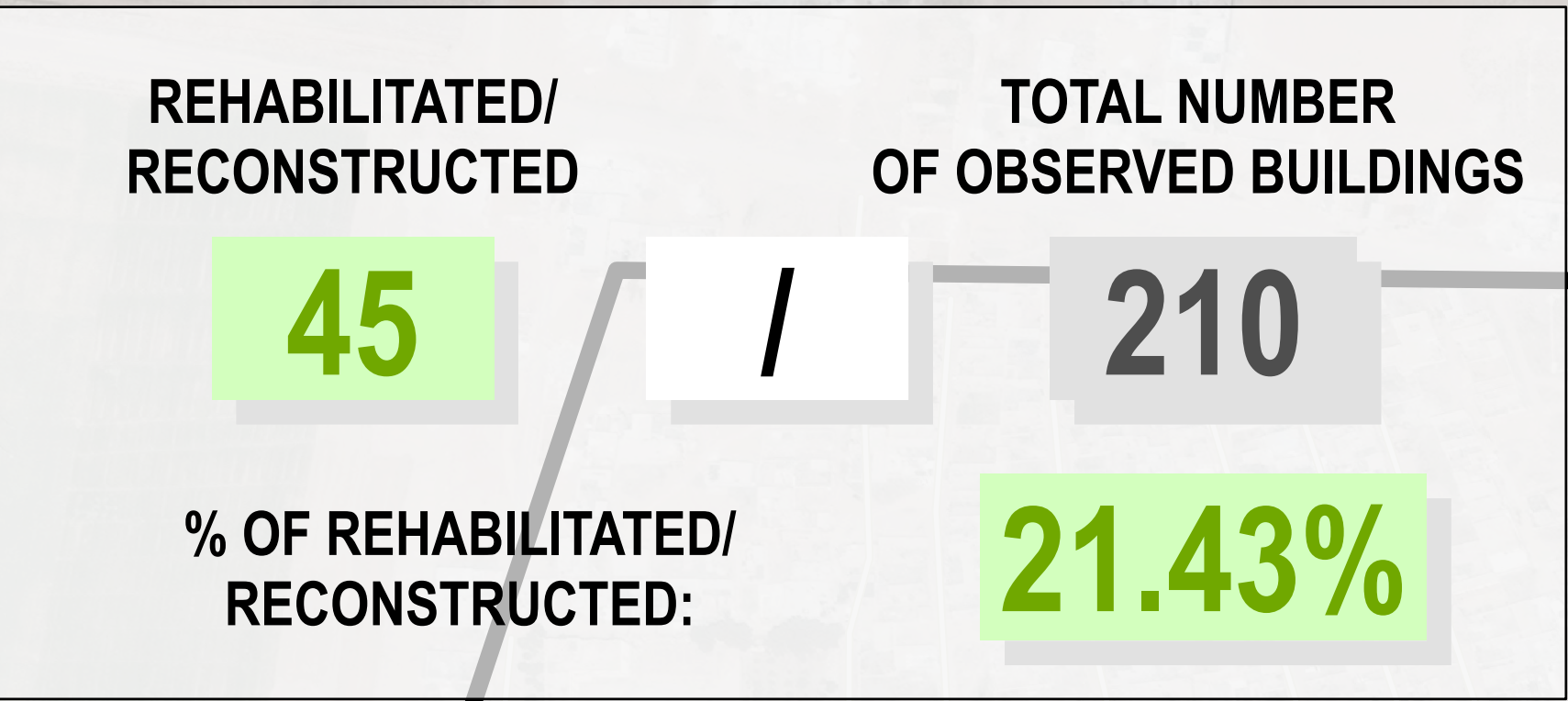
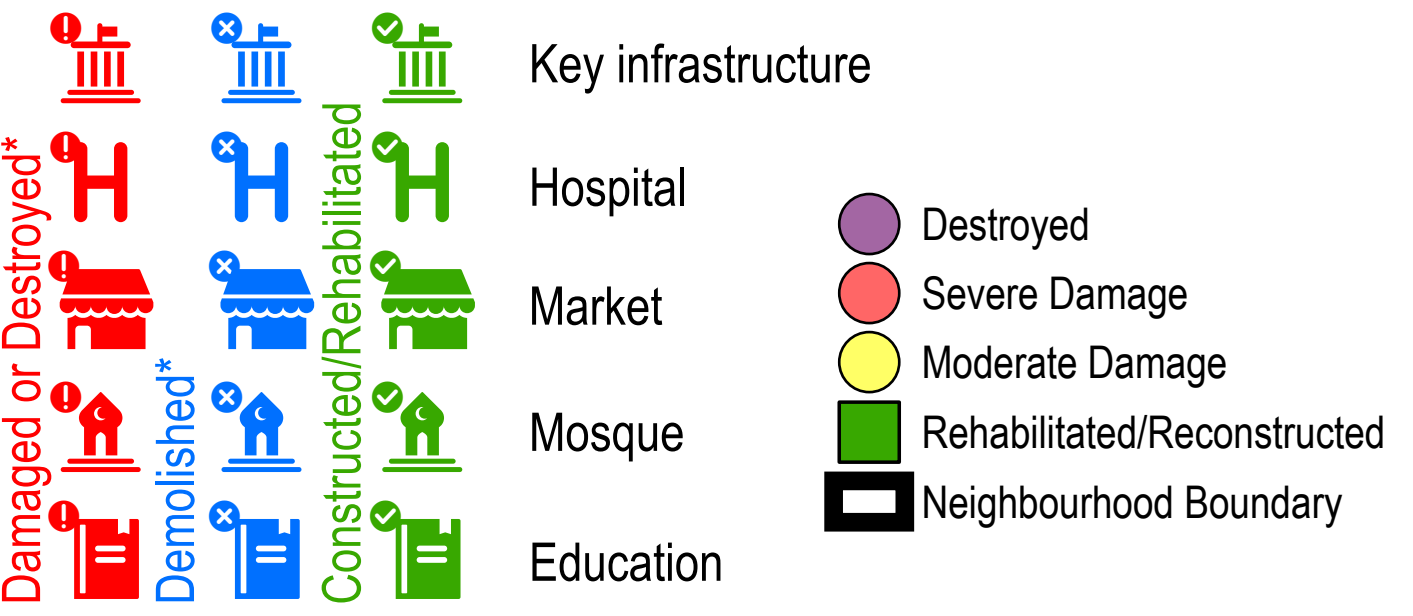
The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Ad Dari'yeh Damage Counts, by # of identified structures



High Damage Severity / Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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Road Data: OpenStreetMap  
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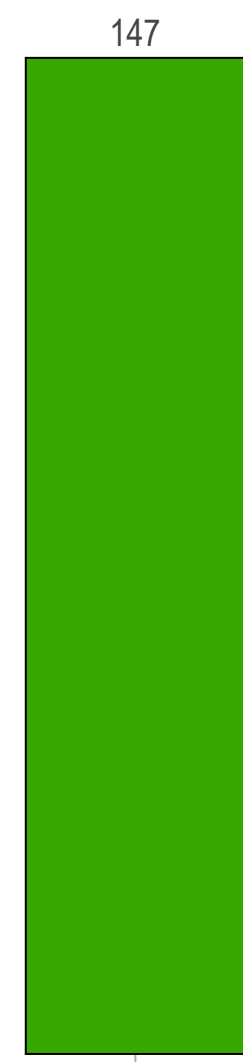
Satellite Data (5): WorldView 2 from 12 February 2014  
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Hettin Damage Counts,  
by # of identified structures

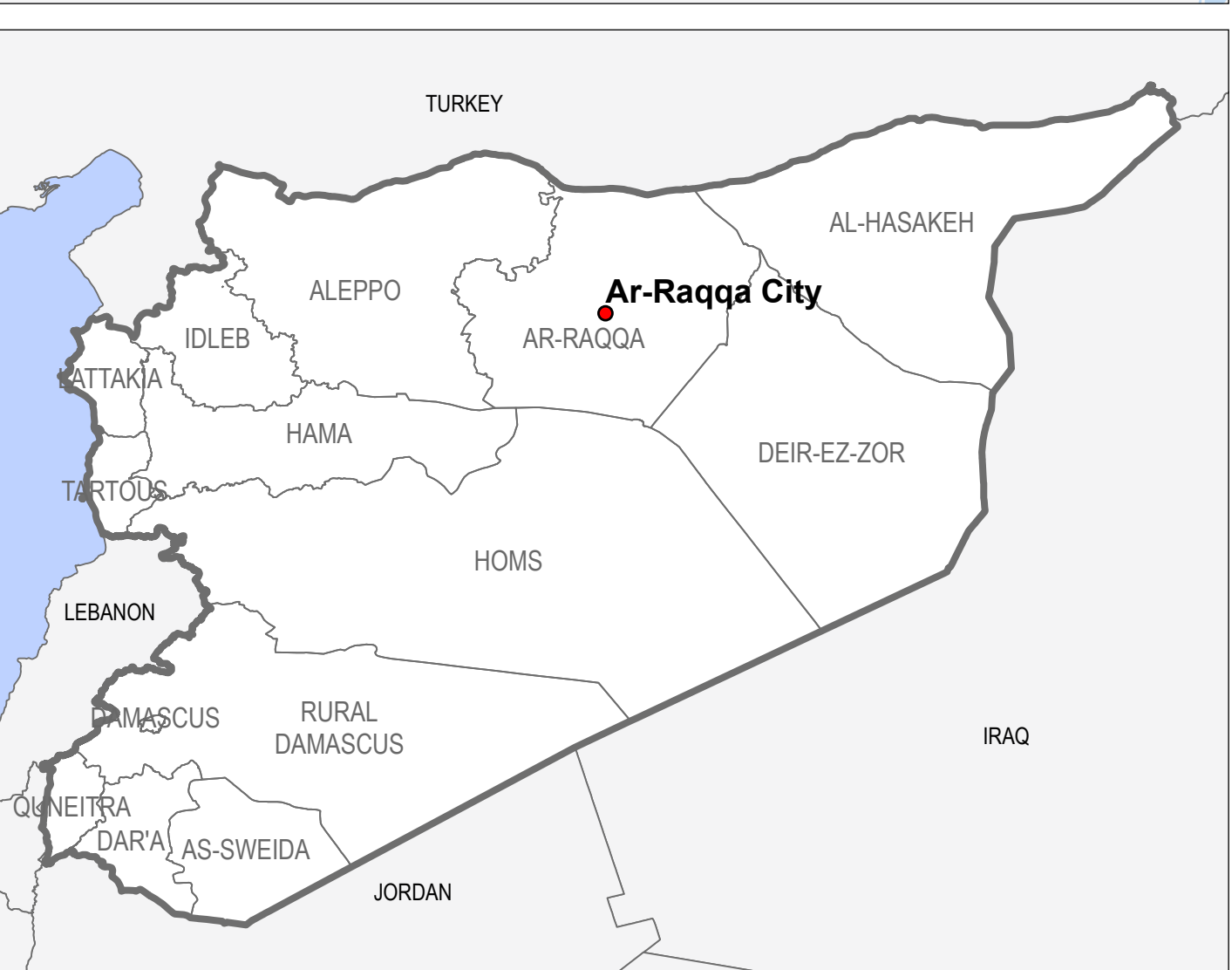
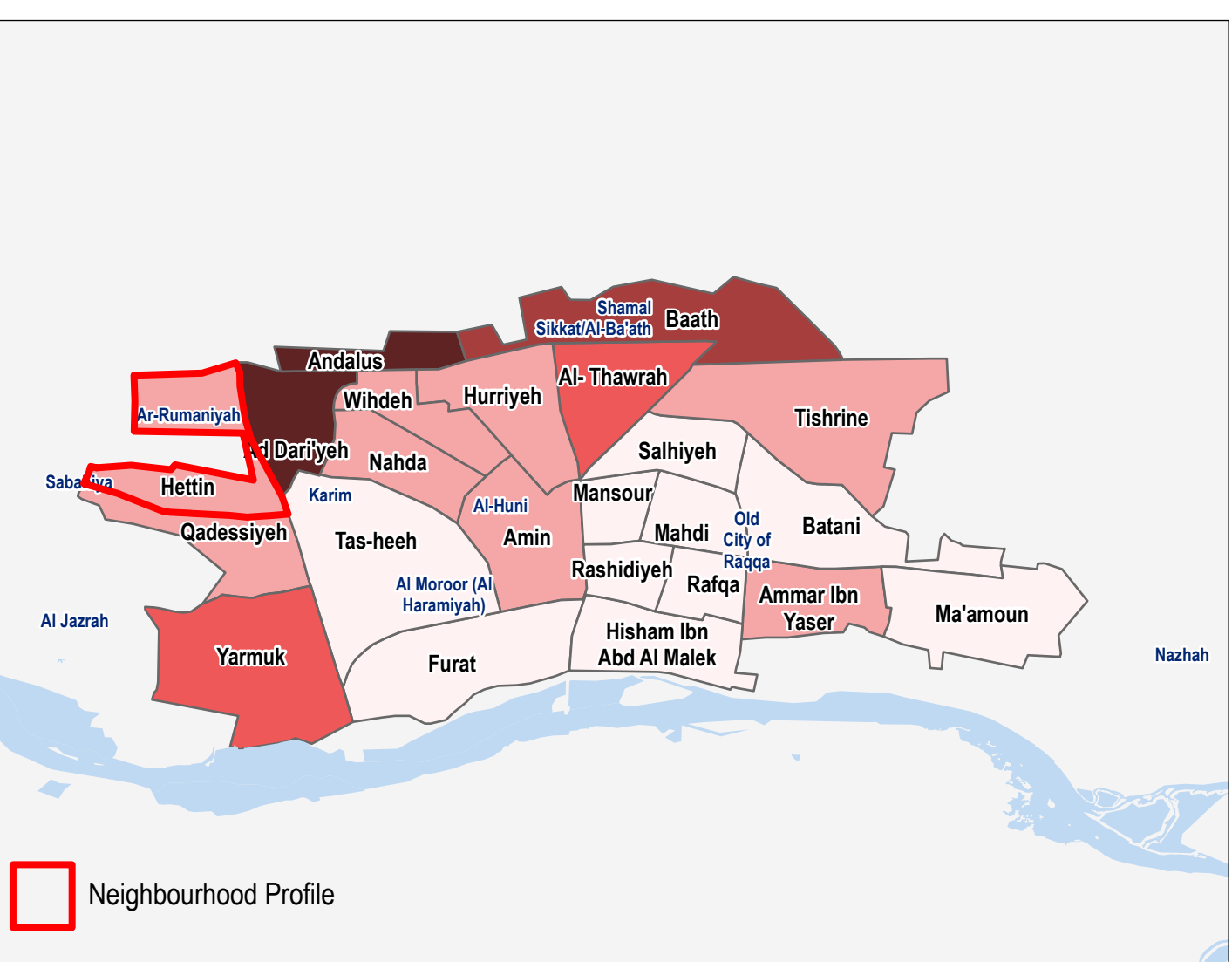


Destroyed Severely Damaged Moderately Damaged Rehabilitated/Reconstructed



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

|  |                             |  |                             |
|--|-----------------------------|--|-----------------------------|
|  | Destroyed                   |  | Severe Damage               |
|  | Severely Damaged            |  | Moderate Damage             |
|  | Moderately Damaged          |  | Rehabilitated/Reconstructed |
|  | Rehabilitated/Reconstructed |  | Neighbourhood Boundary      |



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Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
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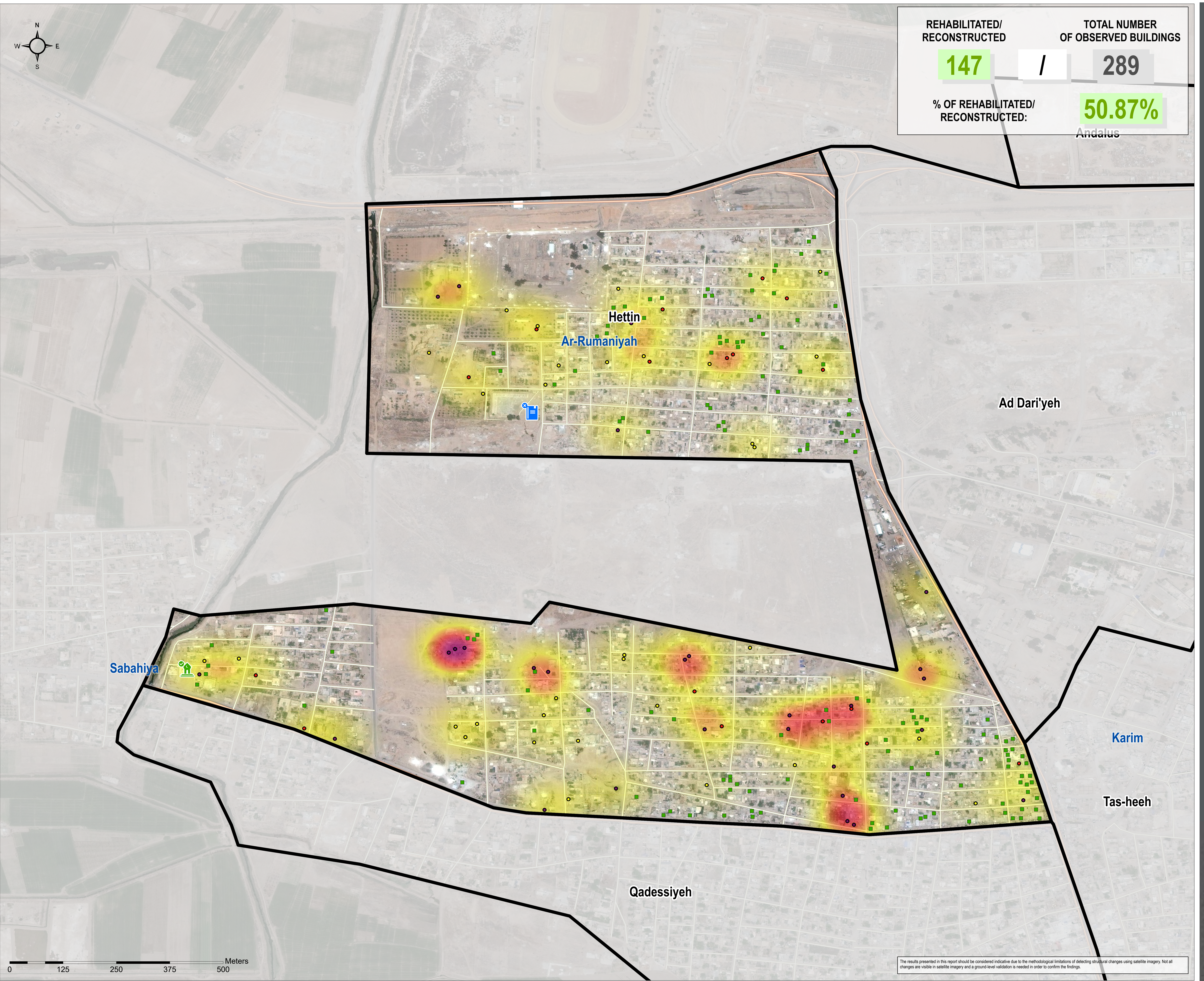
Satellite Data (2): WorldView 3 from 21 October 2017  
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Satellite Data (3): WorldView 2 from 03 February 2017  
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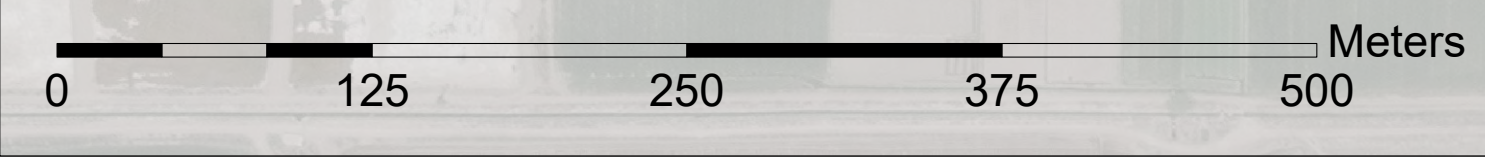
Satellite Data (4): Pleidas from 29 May 2015  
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Satellite Data (5): WorldView 2 from 12 February 2014  
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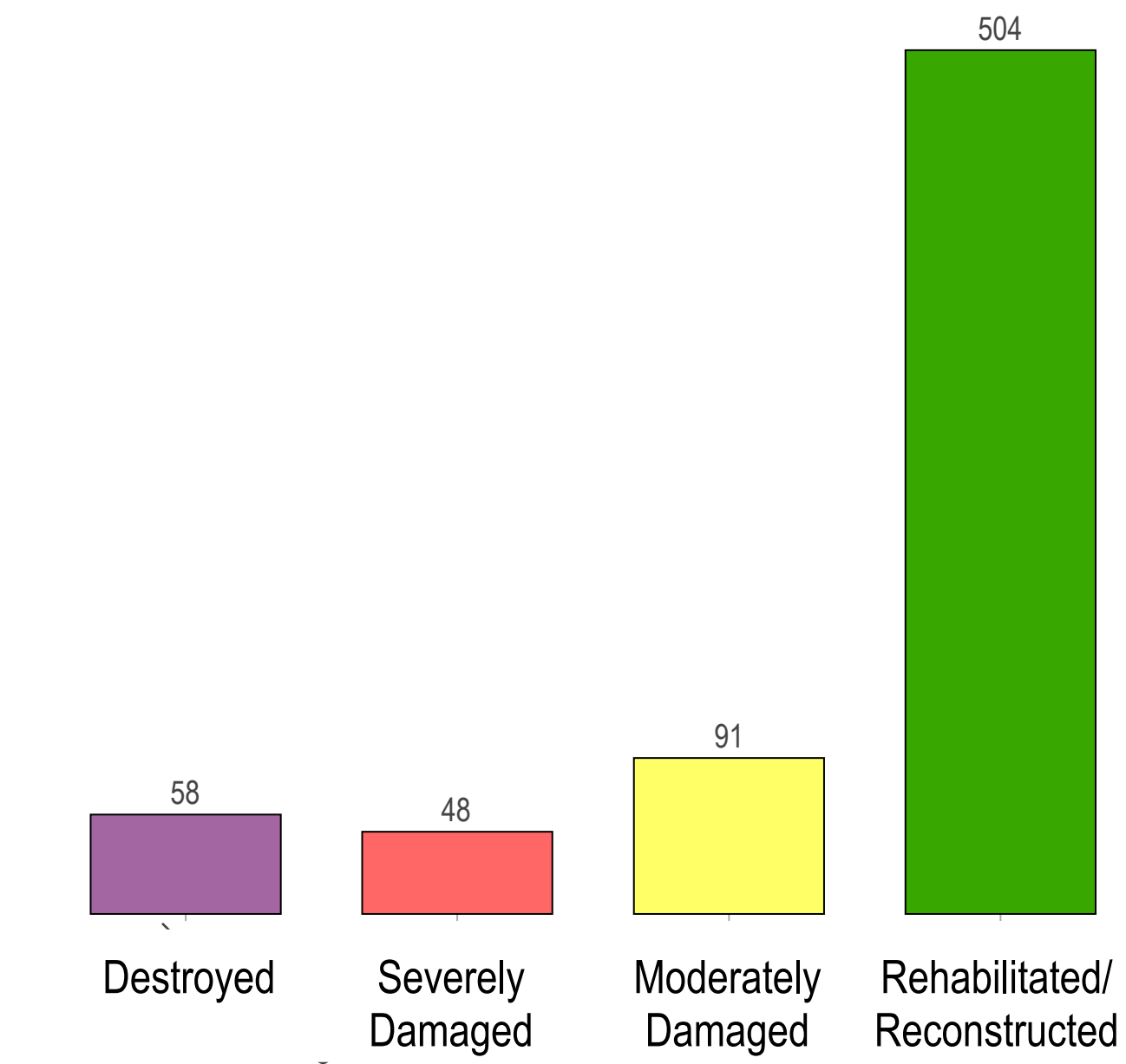


|                                   |                                    |
|-----------------------------------|------------------------------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
| <b>147</b>                        | <b>289</b>                         |
| /                                 |                                    |
| % OF REHABILITATED/RECONSTRUCTED: | <b>50.87%</b>                      |
|                                   | Andalus                            |



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Salhiyeh Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

**Key Infrastructure**

- Hospital
- Market
- Mosque
- Education

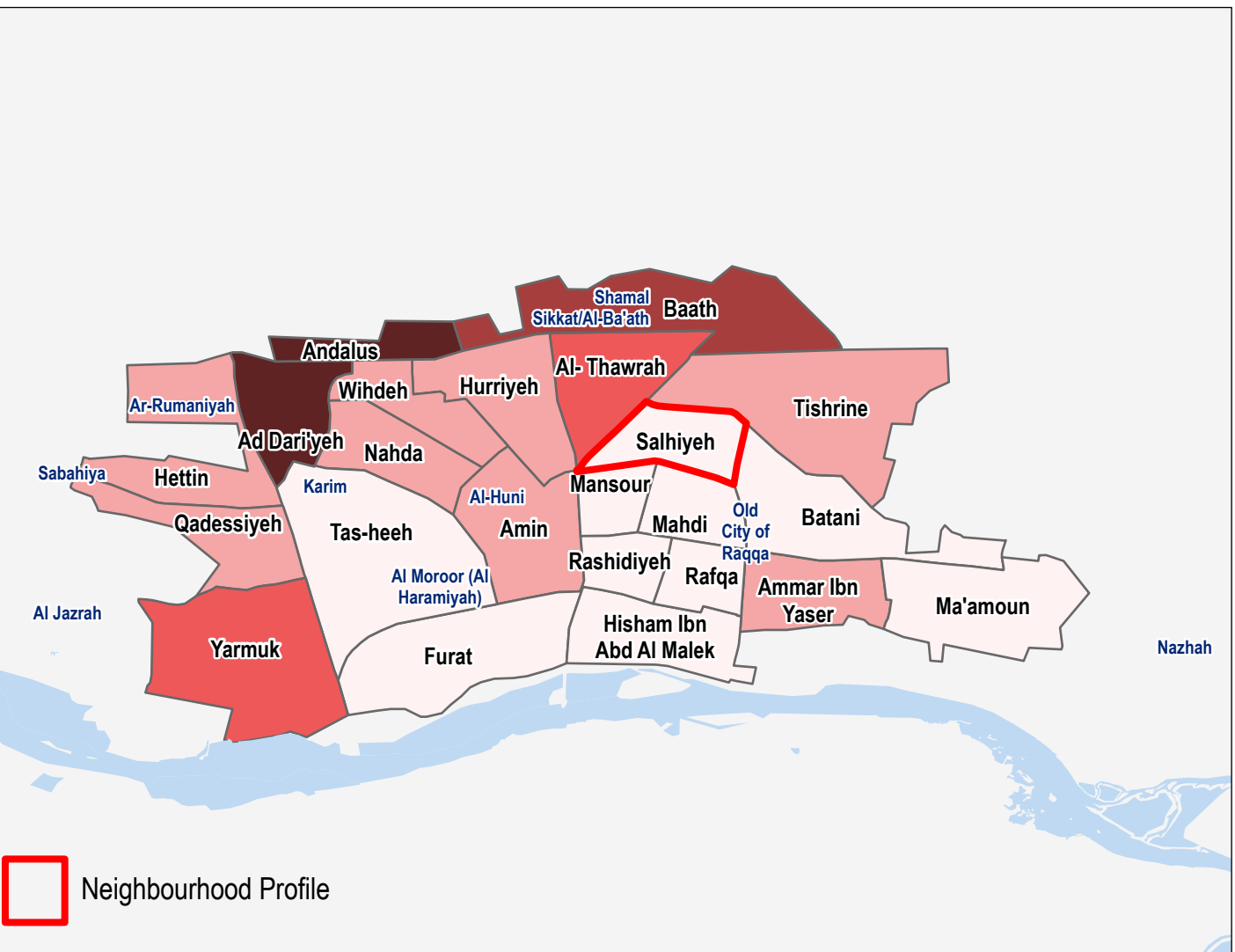
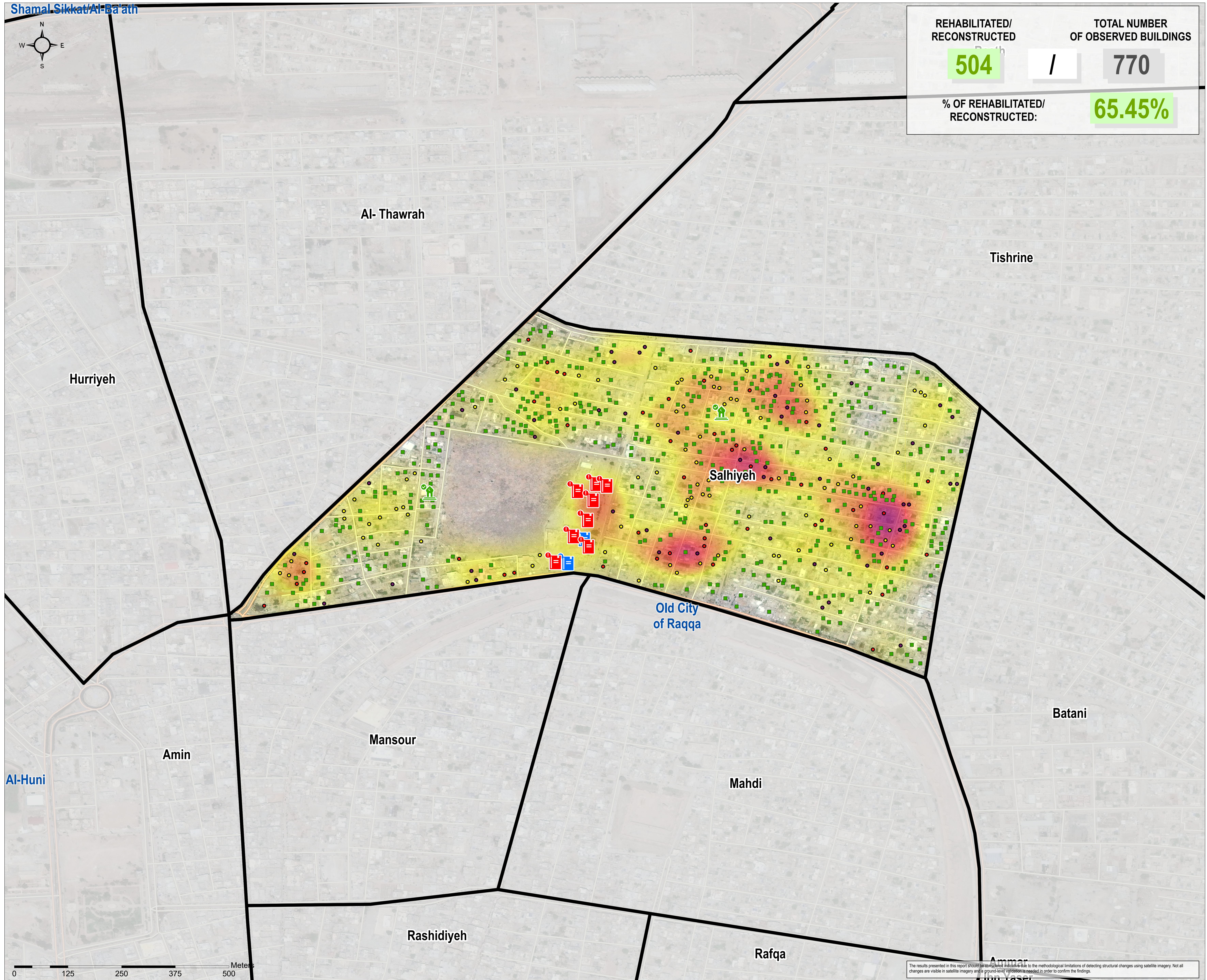
**Damage Status**

- Destroyed (Purple)
- Severe Damage (Red)
- Moderate Damage (Yellow)
- Rehabilitated/Reconstructed (Green)

**Other Symbols**

- Damaged or Destroyed (Red building icon)
- Demolished (Blue building icon)
- Constructed/Rehabilitated (Green building icon)

| REHABILITATED/RECONSTRUCTED              | TOTAL NUMBER OF OBSERVED BUILDINGS |
|--|------------------------------------|
| 504                                      | 770                                |
| % OF REHABILITATED/RECONSTRUCTED: 65.45% |                                    |



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

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 Satellite imagery: WorldView 2 from 29 April 2021  
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**Analysis Conducted comparing:**  
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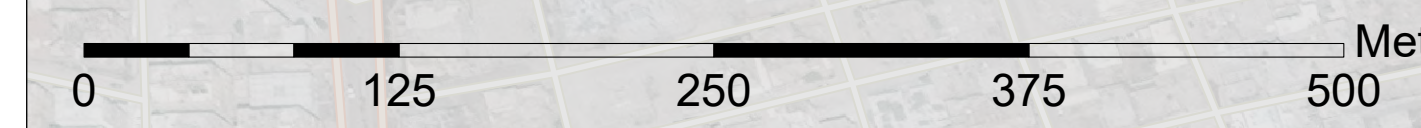
**Satellite Data (3):** WorldView 2 from 03 February 2017  
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**Road Data:** OpenStreetMap  
**Admin Data:** UN OCHA  
**Analysis:** UNITAR-UNOSAT  
**Production:** REACH Initiatives

**Satellite Data (4):** Pleiades from 29 May 2015  
 Copyright: DigitalGlobe, Inc  
 Source: US Department of State, Humanitarian Information Unit, NextView License.

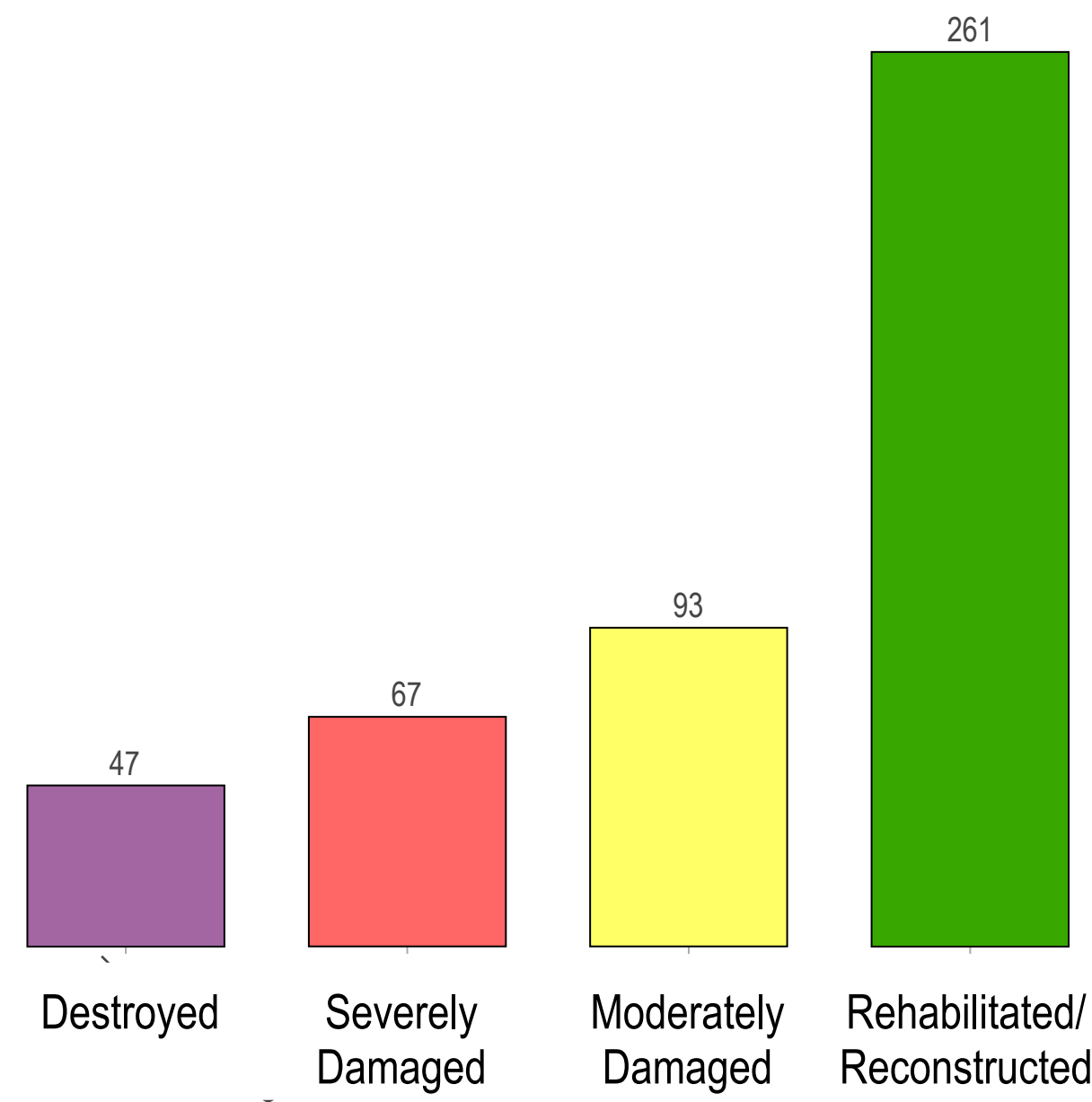
**Satellite Data (5):** WorldView 2 from 12 February 2014  
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Nahda Damage Counts, by # of identified structures



High Damage Severity / Low Damage Severity

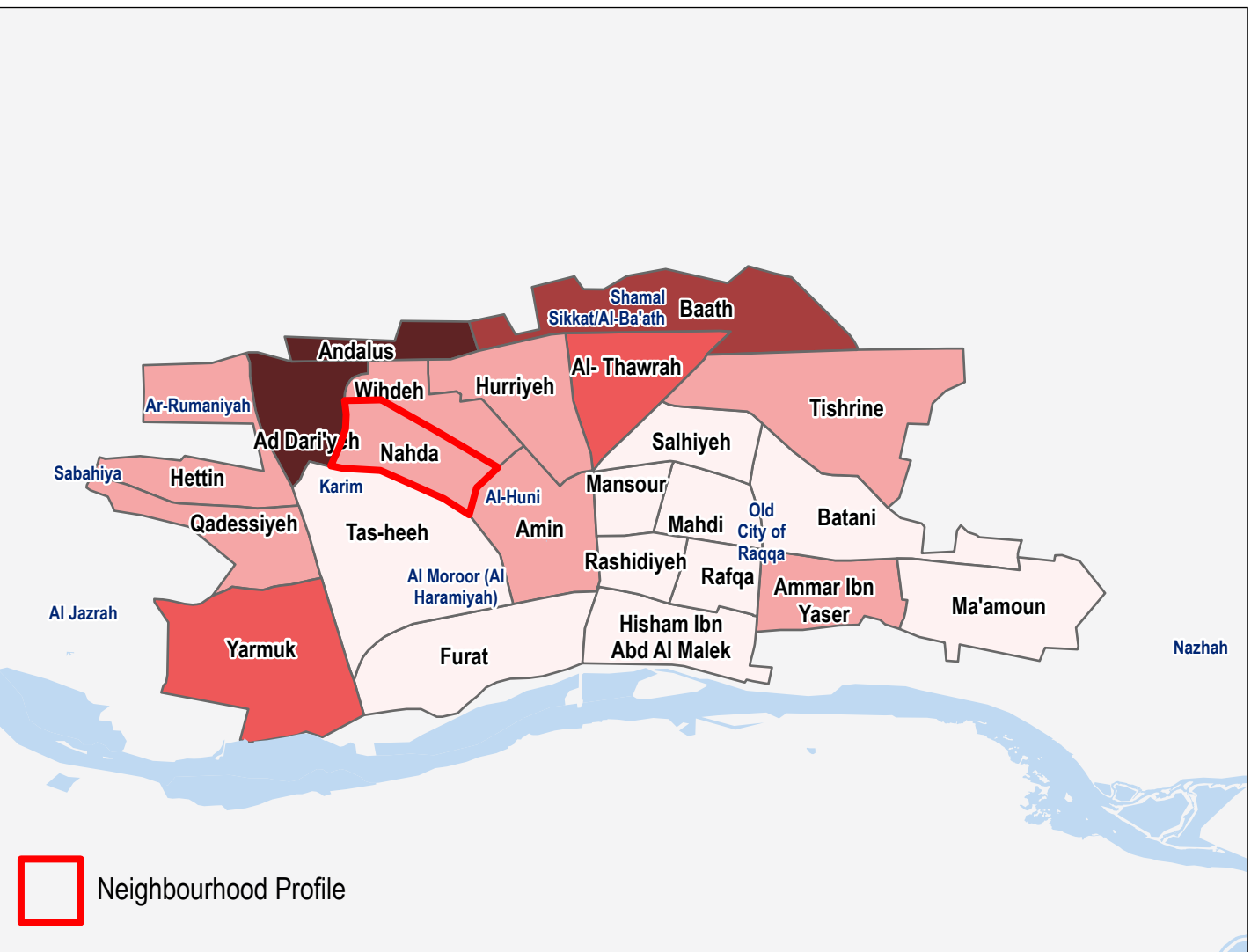
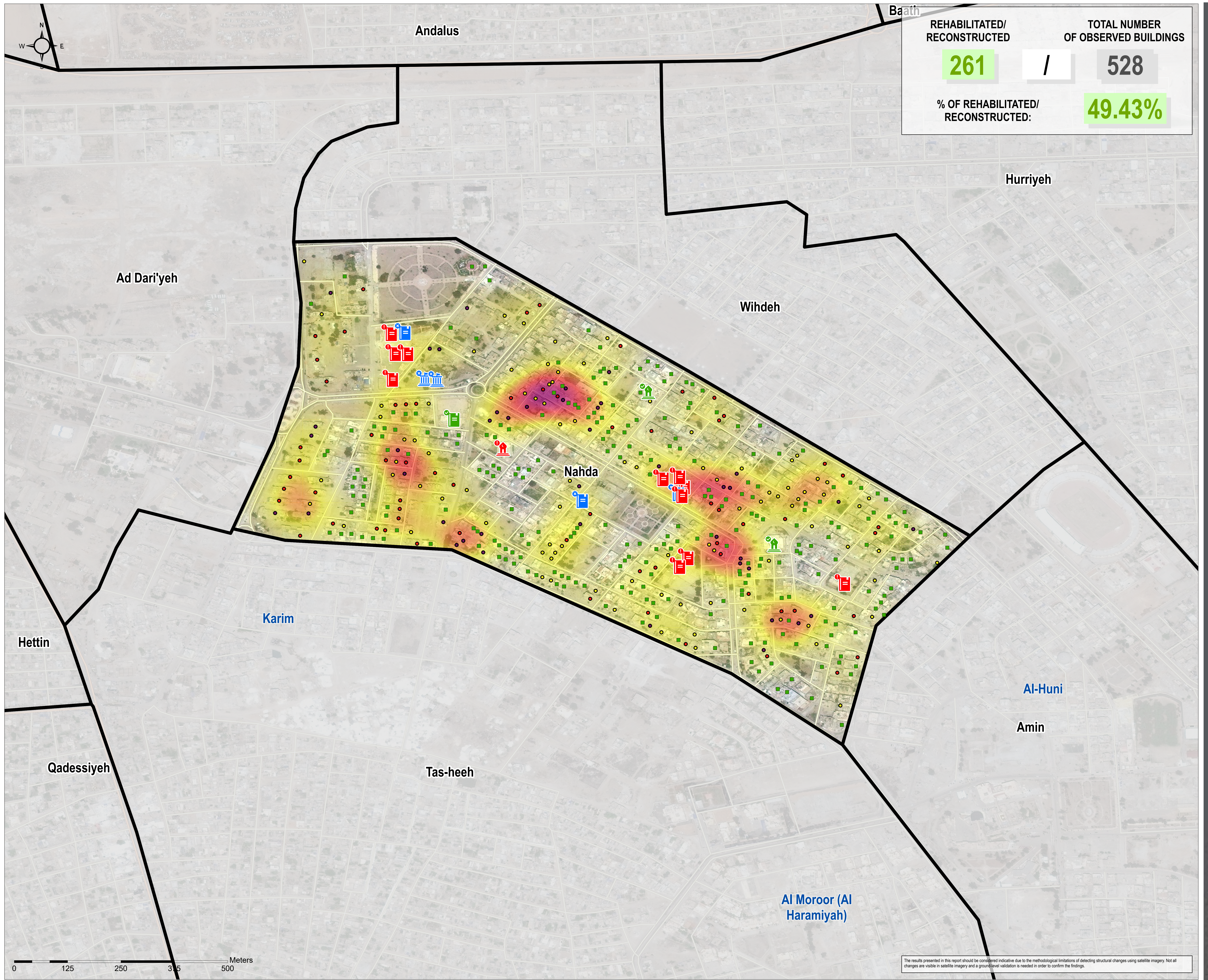
\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

Key infrastructure icons: Hospital, Market, Mosque, Education.

Damage status icons: Destroyed (purple), Severe Damage (red), Moderate Damage (yellow), Rehabilitated/Reconstructed (green).

Neighbourhood Boundary (black outline).

| REHABILITATED/RECONSTRUCTED              | TOTAL NUMBER OF OBSERVED BUILDINGS |
|--|------------------------------------|
| 261                                      | 528                                |
| % OF REHABILITATED/RECONSTRUCTED: 49.43% |                                    |



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

Data sources: Road Data: OpenStreetMap; Satellite Imagery: WorldView 2 from 29 April 2021; Copyright: DigitalGlobe, Inc; Source: US Department of State, Humanitarian Information Unit, NextView License.

Analysis Conducted comparing: Satellite Data (1): WorldView 2 from 29 April 2021; Copyright: DigitalGlobe, Inc; Source: US Department of State, Humanitarian Information Unit, NextView License.

Satellite Data (2): WorldView 3 from 21 October 2017; Copyright: DigitalGlobe, Inc; Source: US Department of State, Humanitarian Information Unit, NextView License.

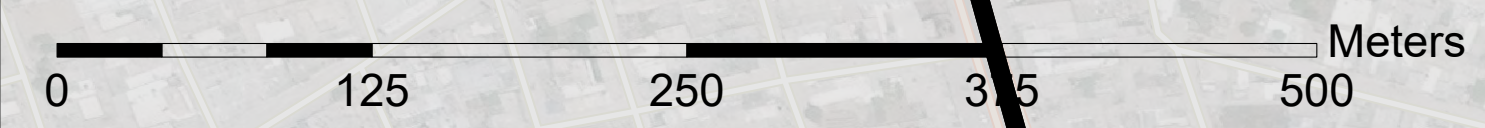
Satellite Data (3): WorldView 2 from 03 February 2017; Copyright: DigitalGlobe, Inc; Source: US Department of State, Humanitarian Information Unit, NextView License.

Road Data: OpenStreetMap; Admin Data: UN OCHA; Analysis: UNITAR-UNOSAT; Production: REACH Initiatives

Satellite Data (4): Pleidas from 29 May 2015; Copyright: DigitalGlobe, Inc; Source: US Department of State, Humanitarian Information Unit, NextView License.

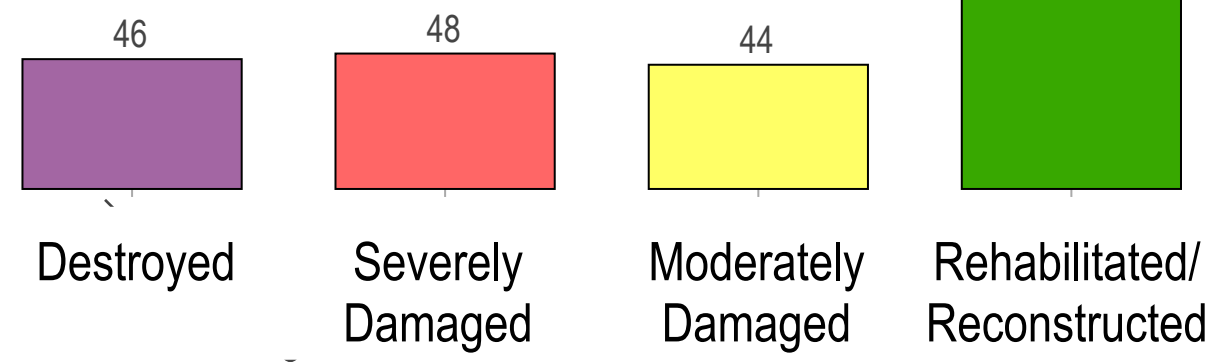
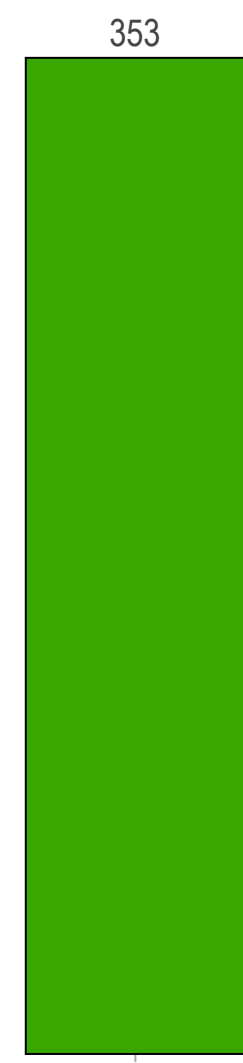
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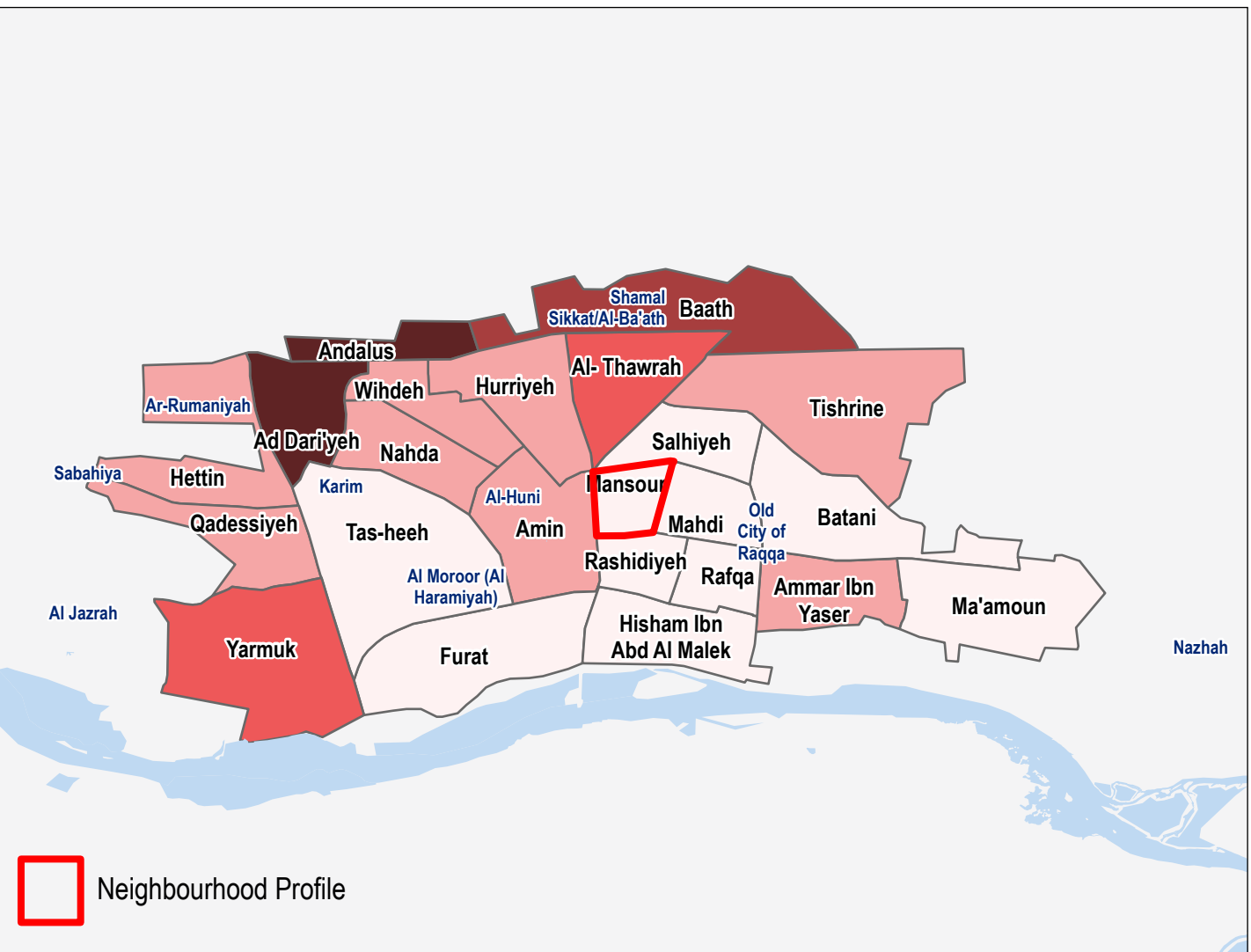
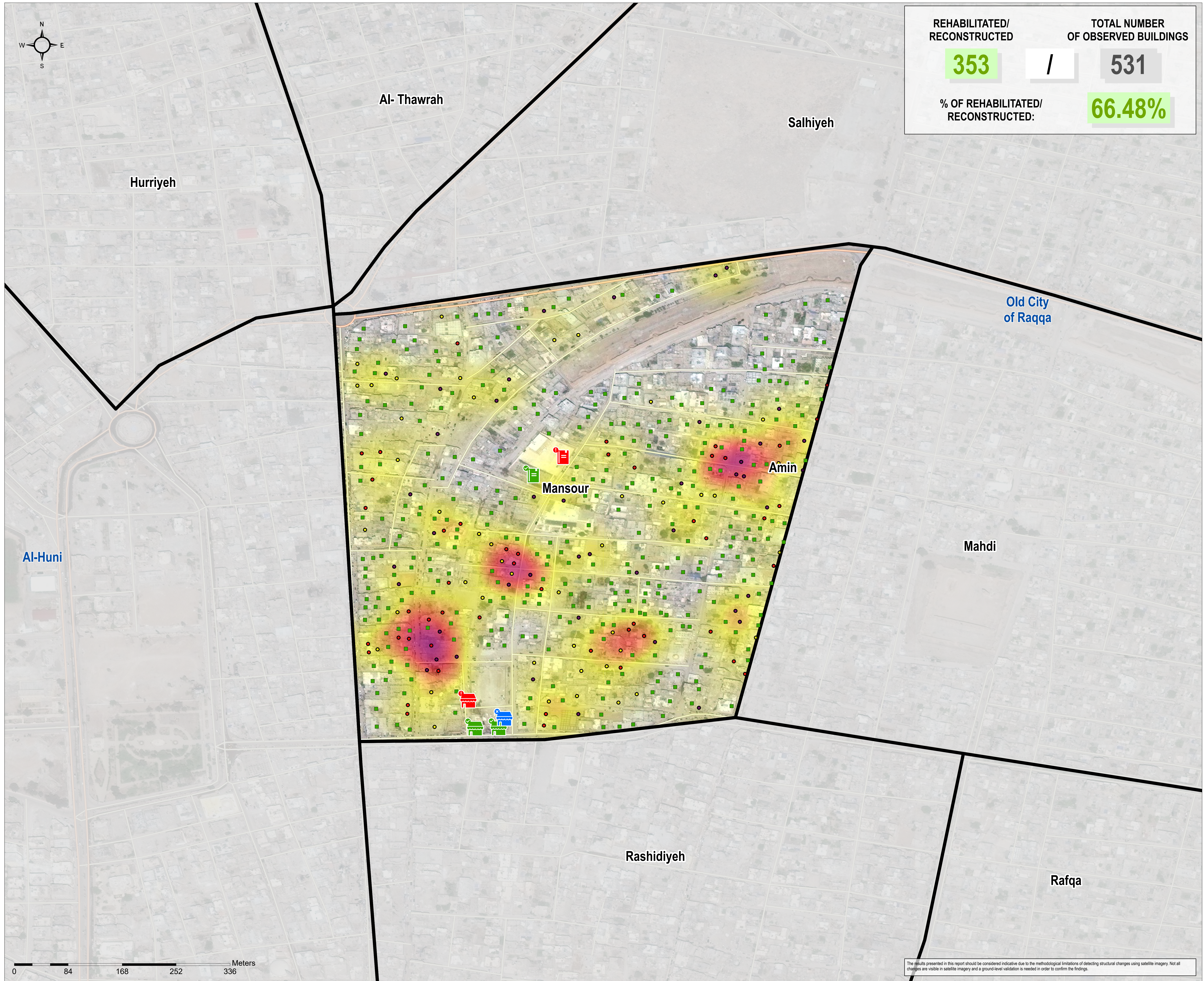
Mansour Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary

|                                   |                                    |
|-----------------------------------|------------------------------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
| <b>353</b>                        | <b>531</b>                         |
| % OF REHABILITATED/RECONSTRUCTED: | <b>66.48%</b>                      |



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

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Road Data: OpenStreetMap  
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 Analysis: UNITAR-UNOSAT  
 Production: REACH Initiatives

Analysis Conducted comparing:  
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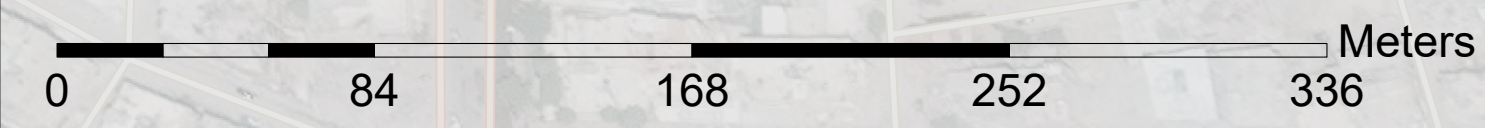
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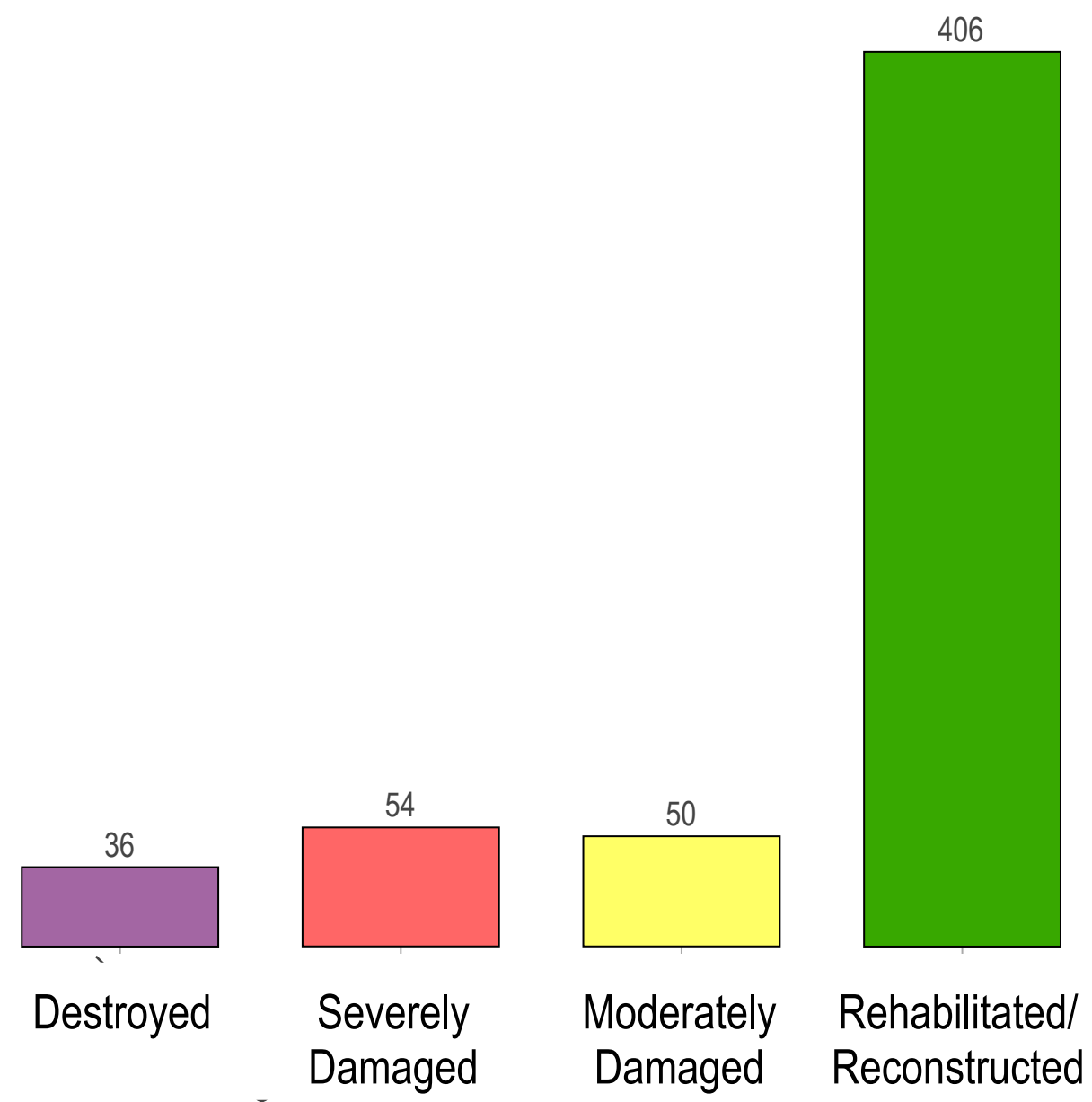
Satellite Data (5): WorldView 2 from 12 February 2014  
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Mahdi Damage Counts,  
by # of identified structures

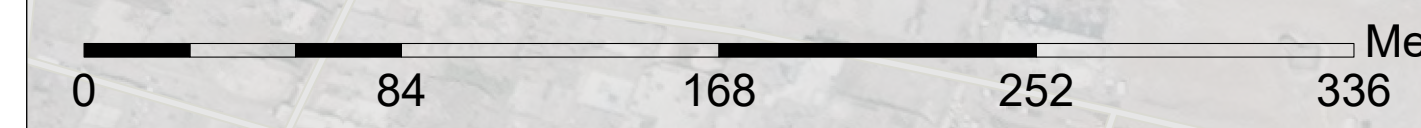
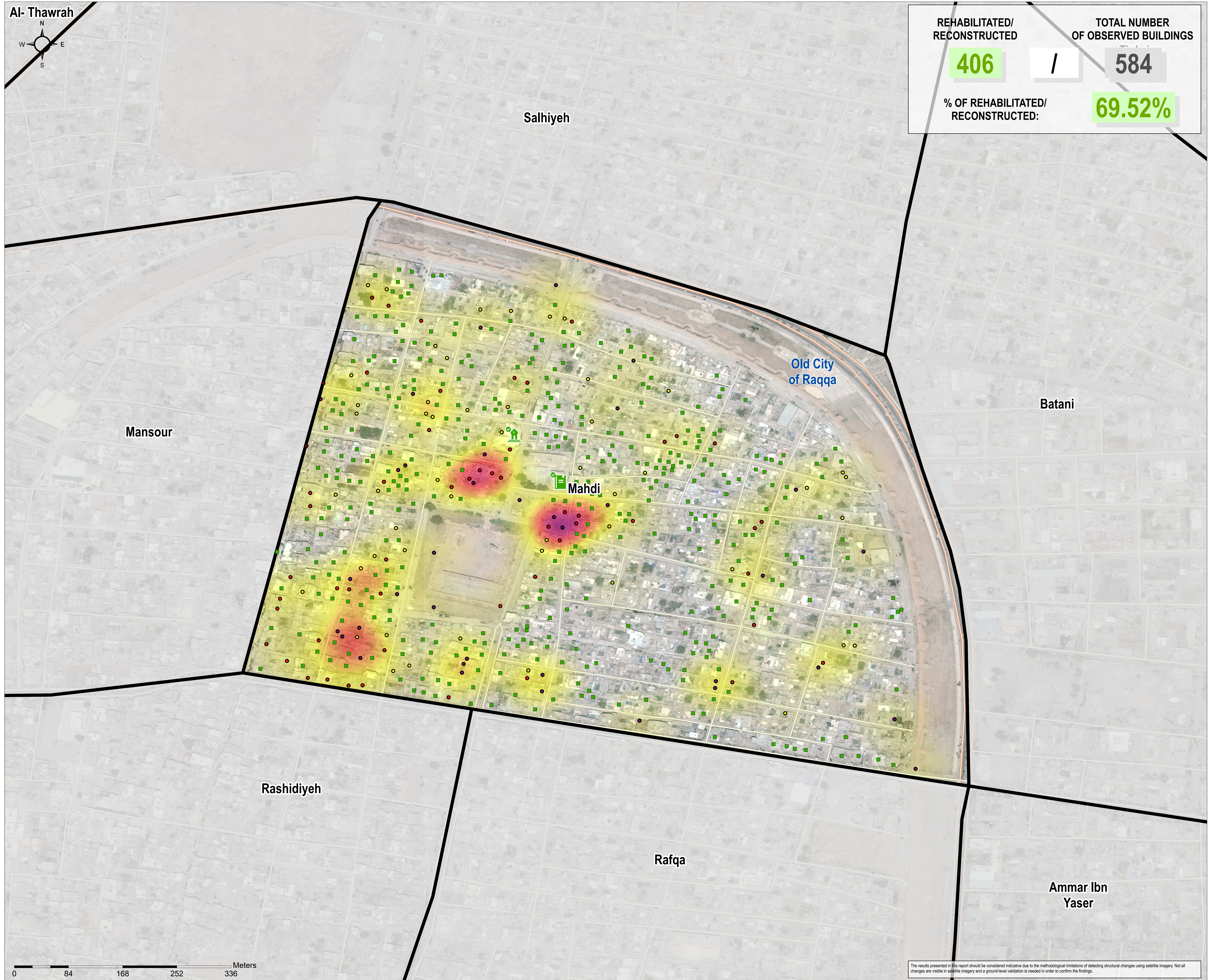


High Damage Severity Low Damage Severity

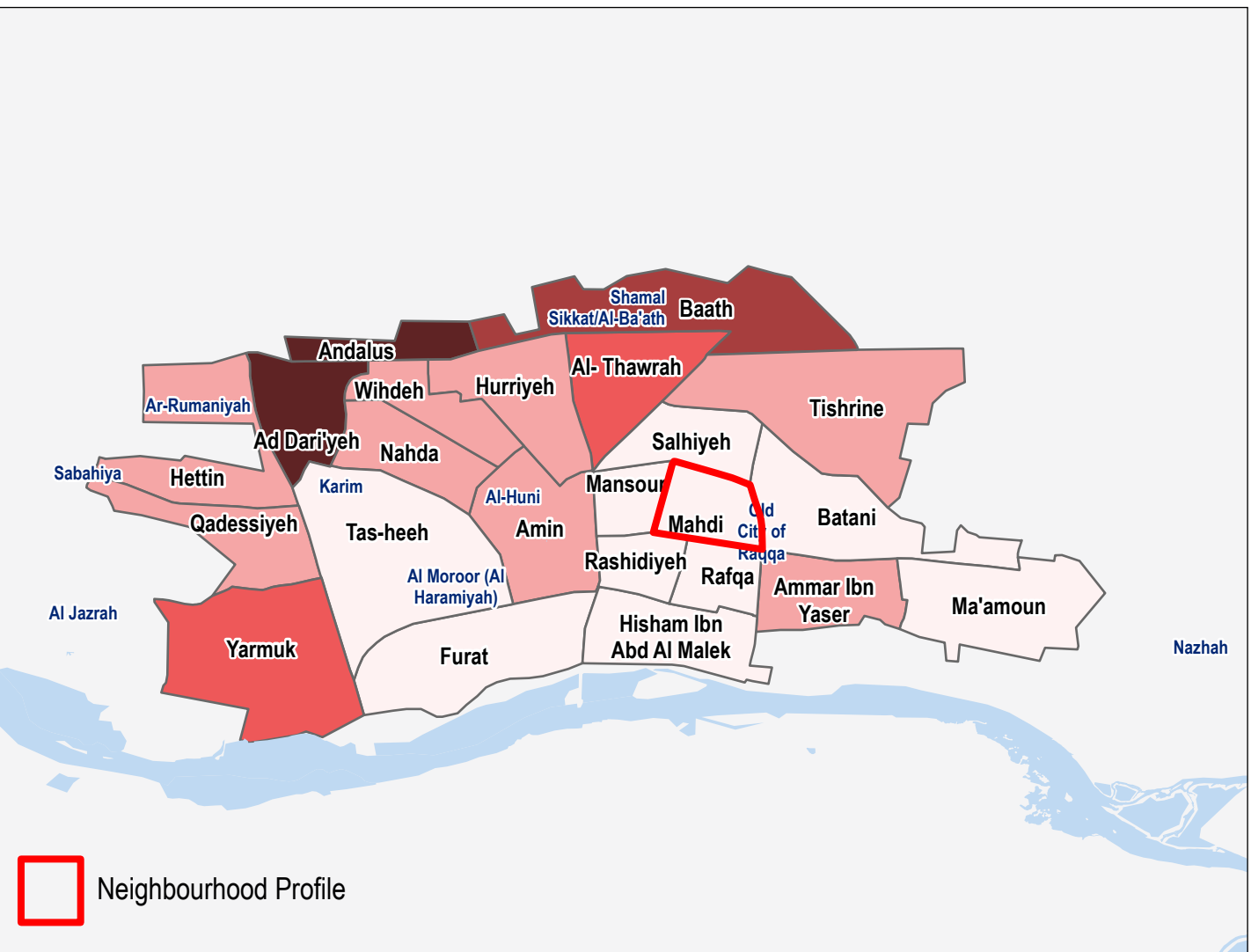
\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| REHABILITATED/<br>RECONSTRUCTED       | TOTAL NUMBER<br>OF OBSERVED BUILDINGS |
| <b>406</b>                            | <b>584</b>                            |
| % OF REHABILITATED/<br>RECONSTRUCTED: | <b>69.52%</b>                         |



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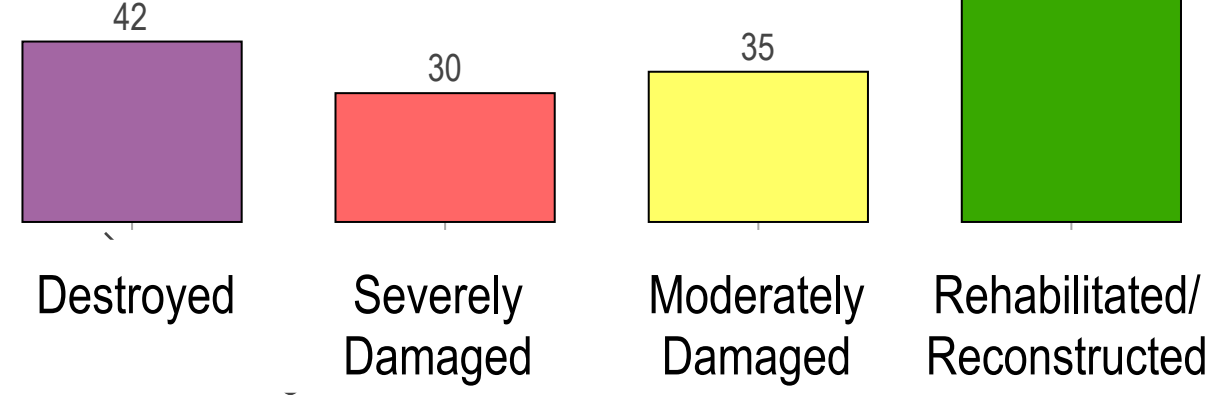
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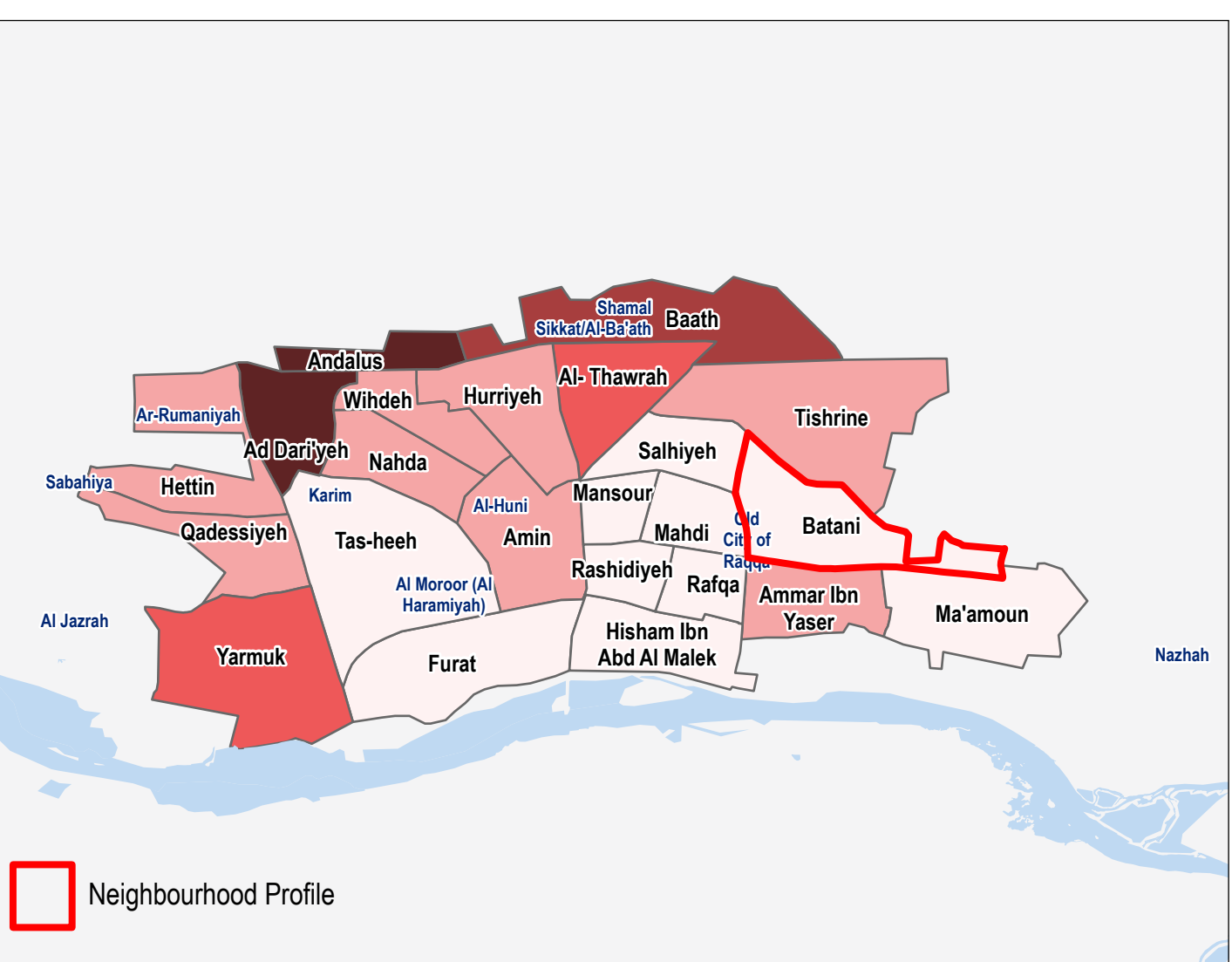
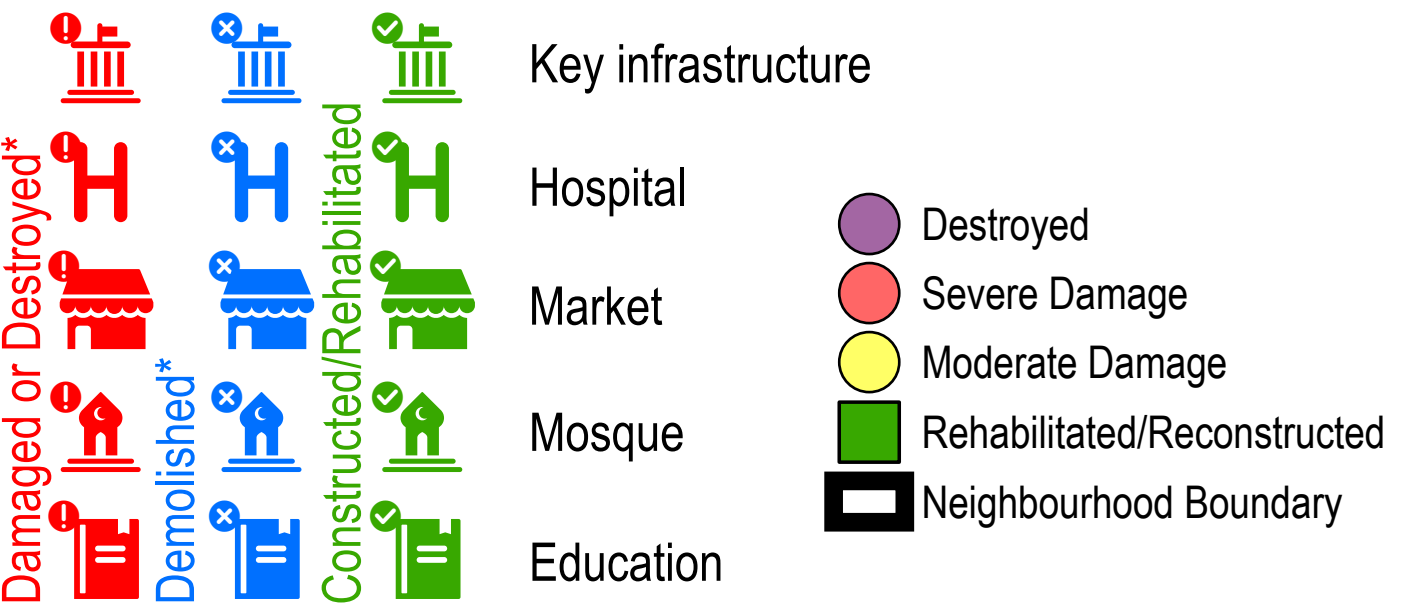
Satellite Data (5): WorldView 2 from 12 February 2014  
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Batani Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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Source: US Department of State, Humanitarian Information Unit, NextView License.

Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
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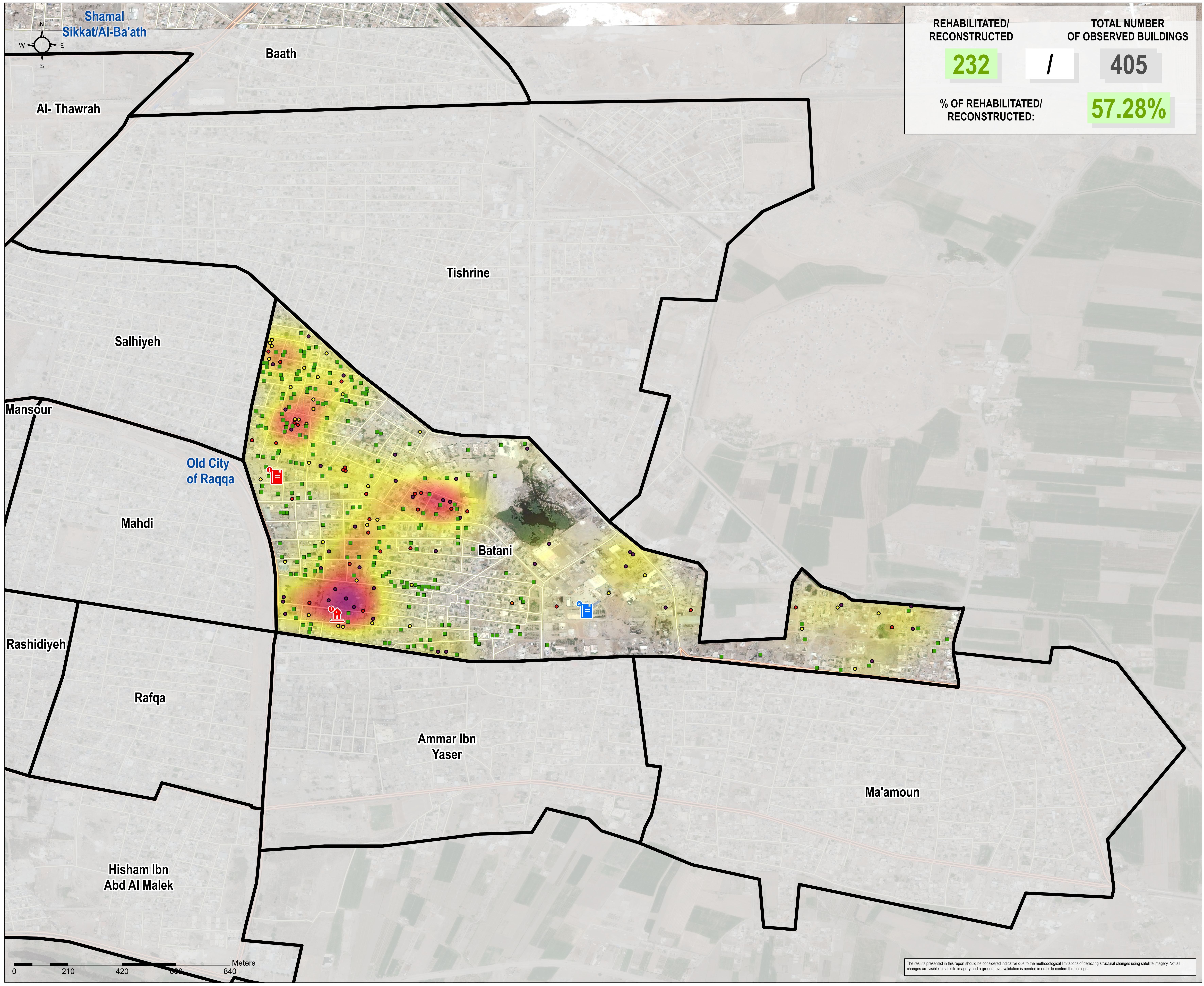
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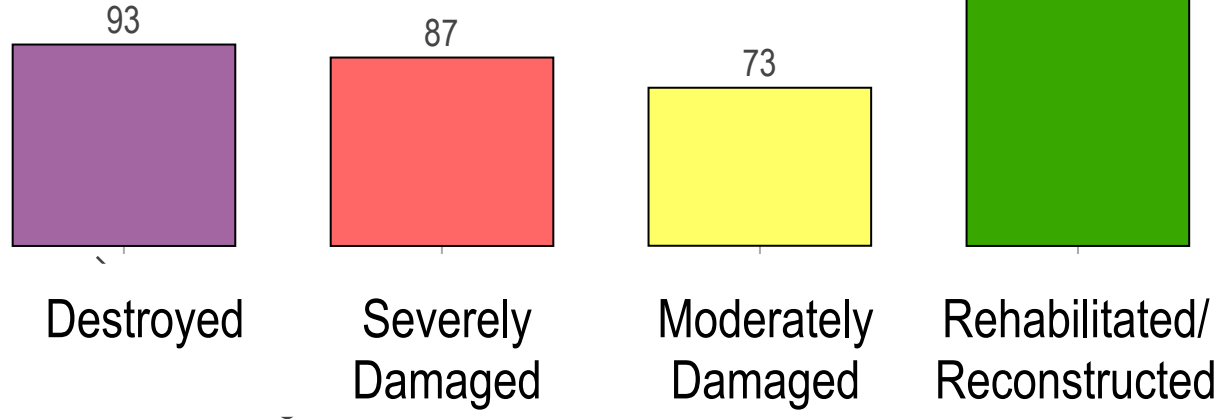
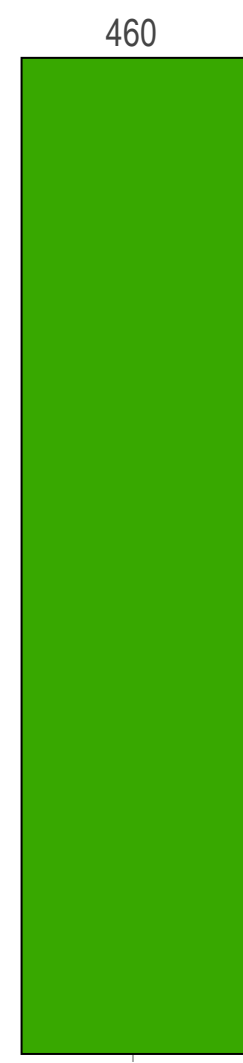


|                                       |                                       |
|---------------------------------------|---------------------------------------|
| REHABILITATED/<br>RECONSTRUCTED       | TOTAL NUMBER<br>OF OBSERVED BUILDINGS |
| <b>232</b>                            | <b>405</b>                            |
| % OF REHABILITATED/<br>RECONSTRUCTED: | <b>57.28%</b>                         |

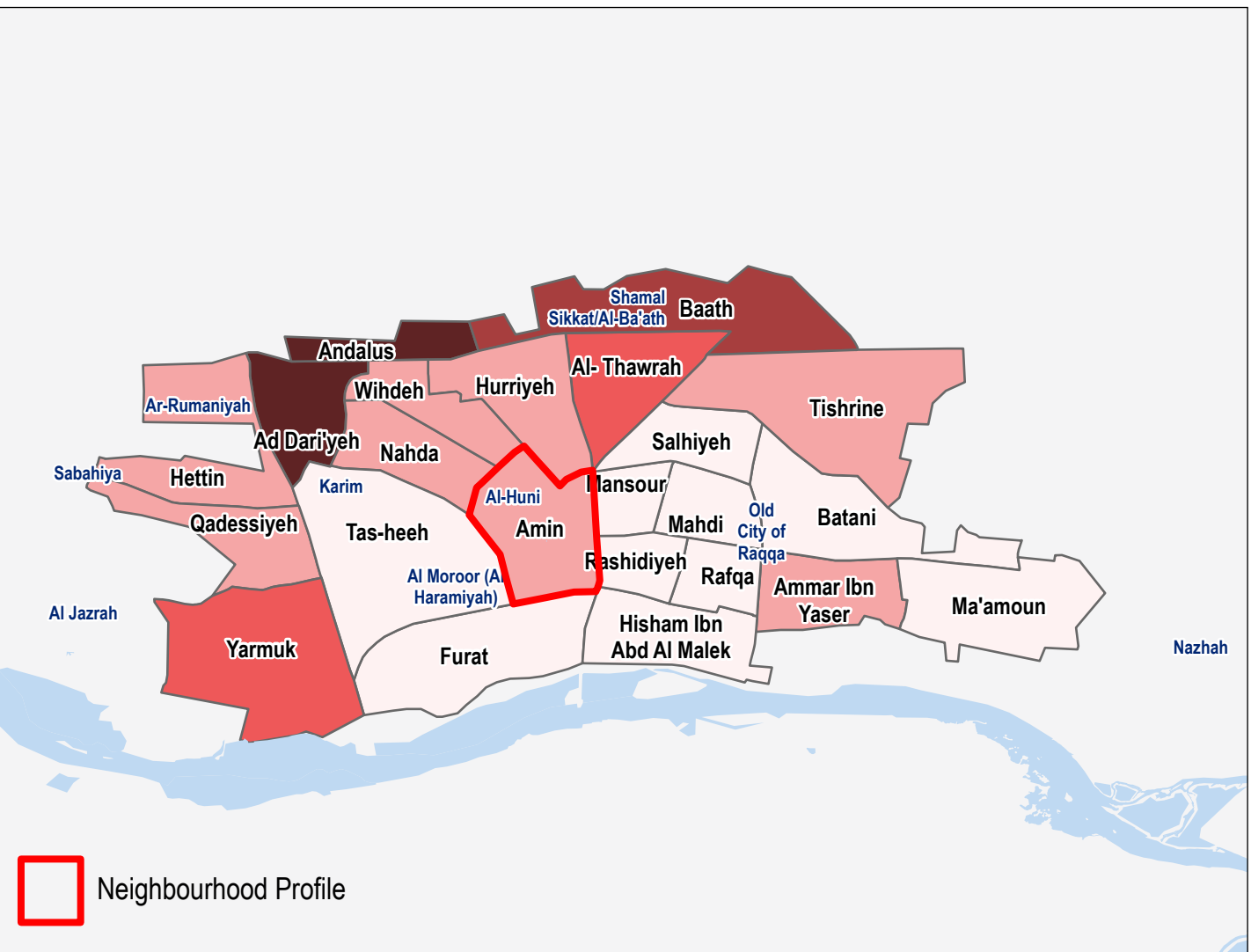
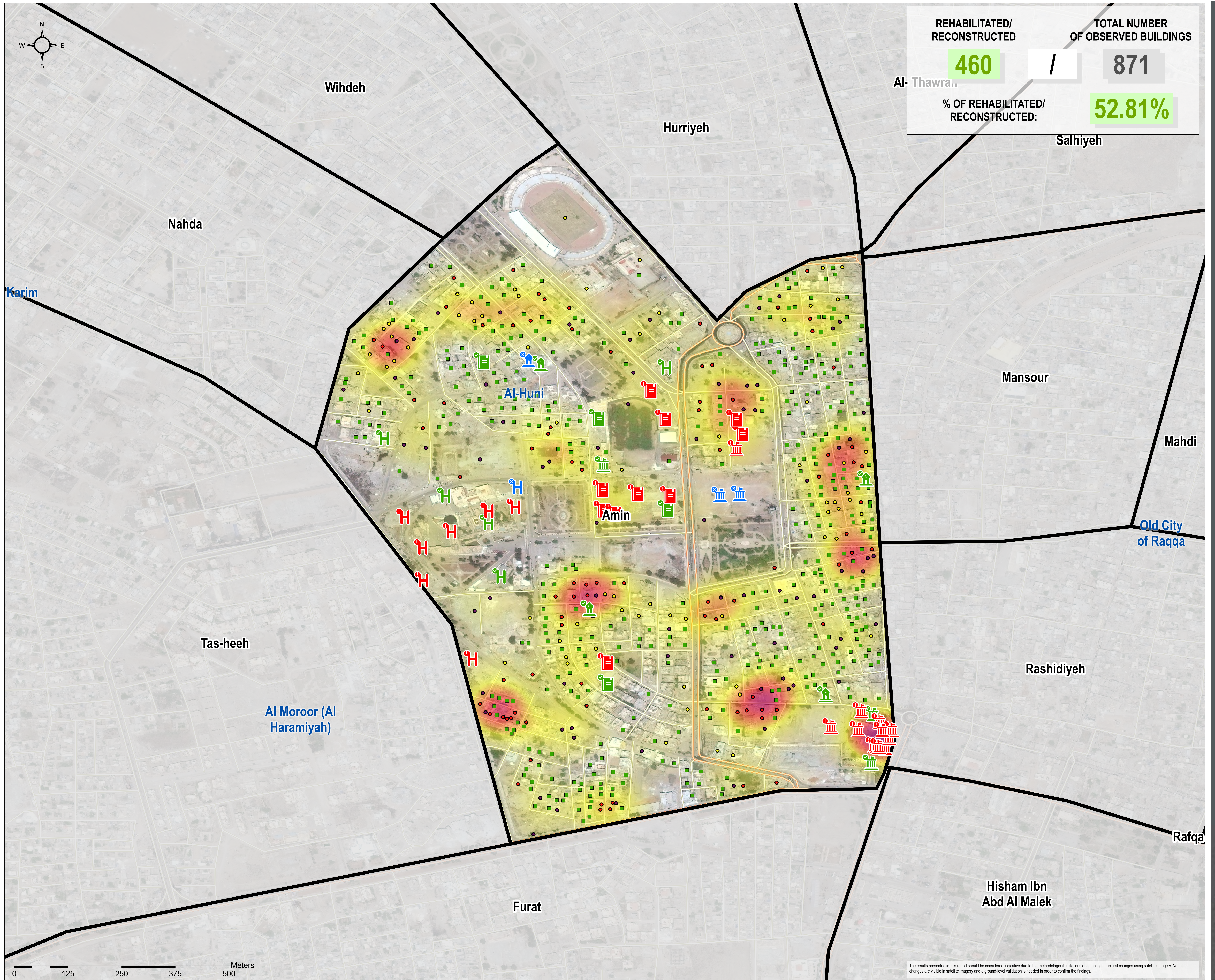
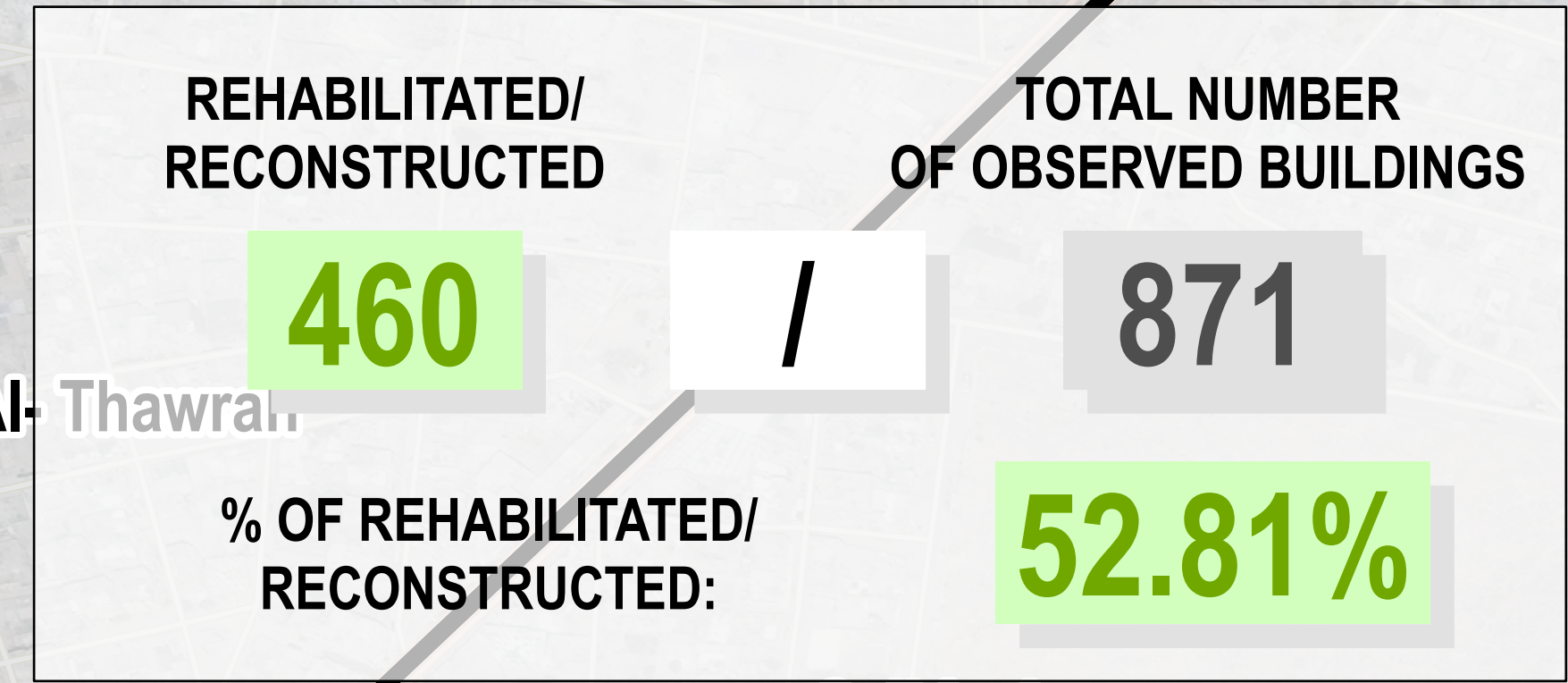
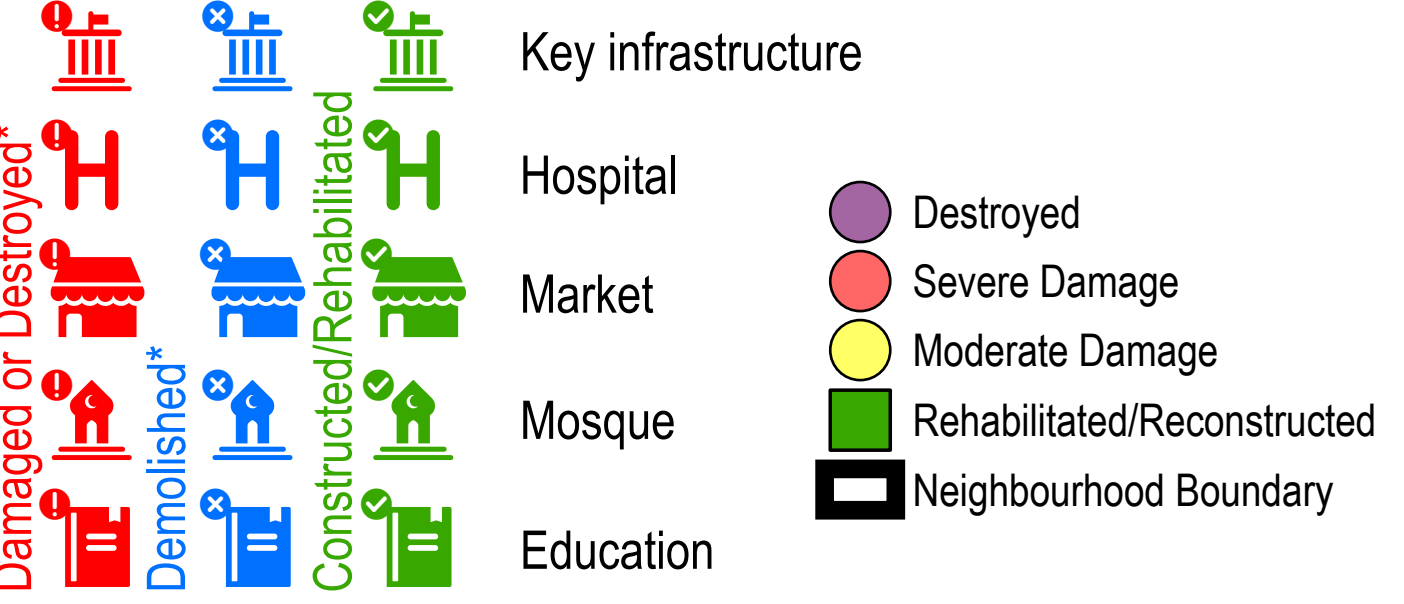


The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Amin Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
Satellite Data (1): WorldView 2 from 29 April 2021  
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Source: US Department of State, Humanitarian Information Unit, NextView License.

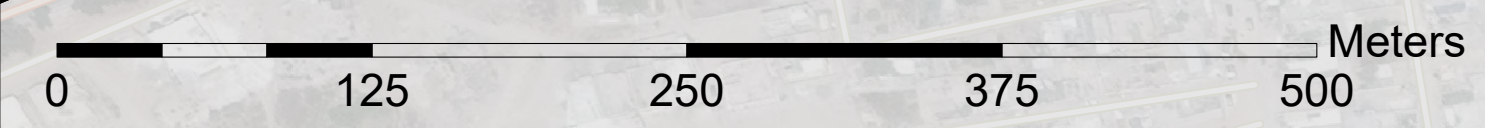
Satellite Data (2): WorldView 3 from 21 October 2017  
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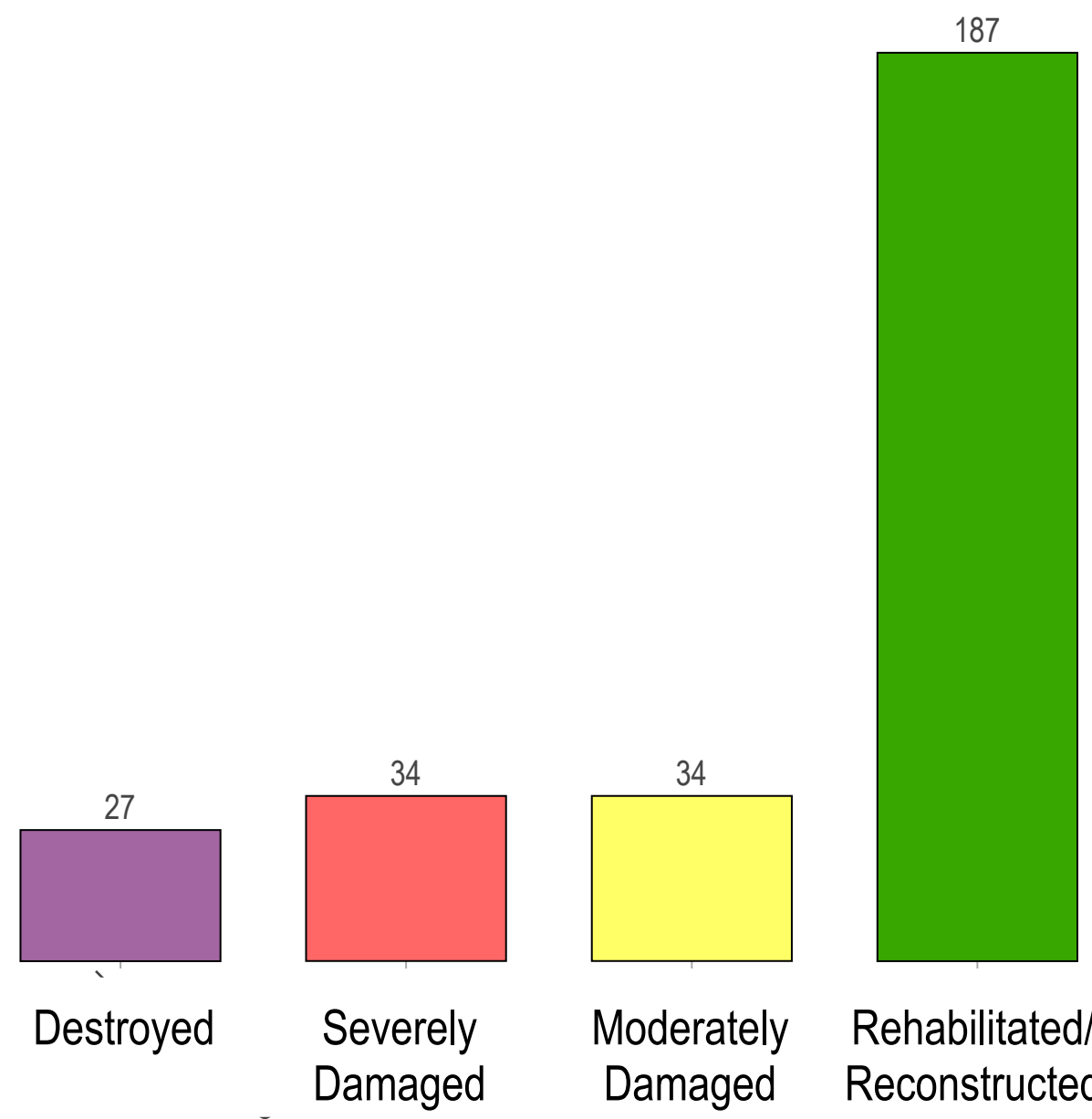
Satellite Data (5): WorldView 2 from 12 February 2014  
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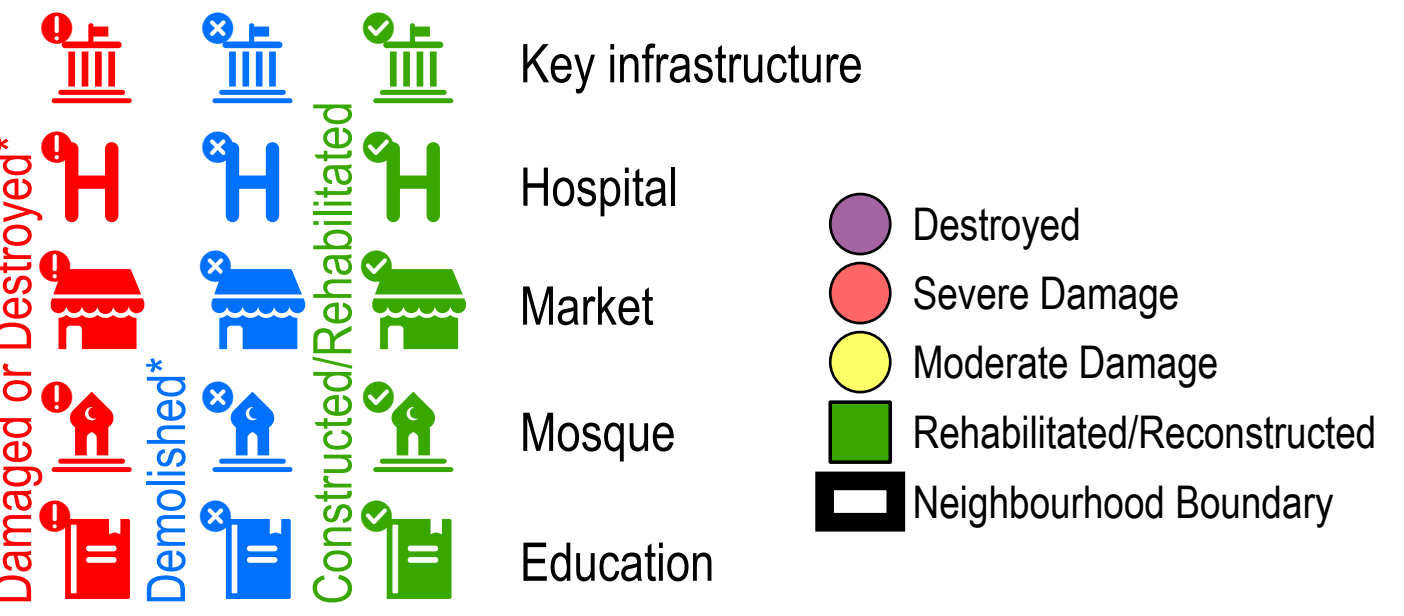


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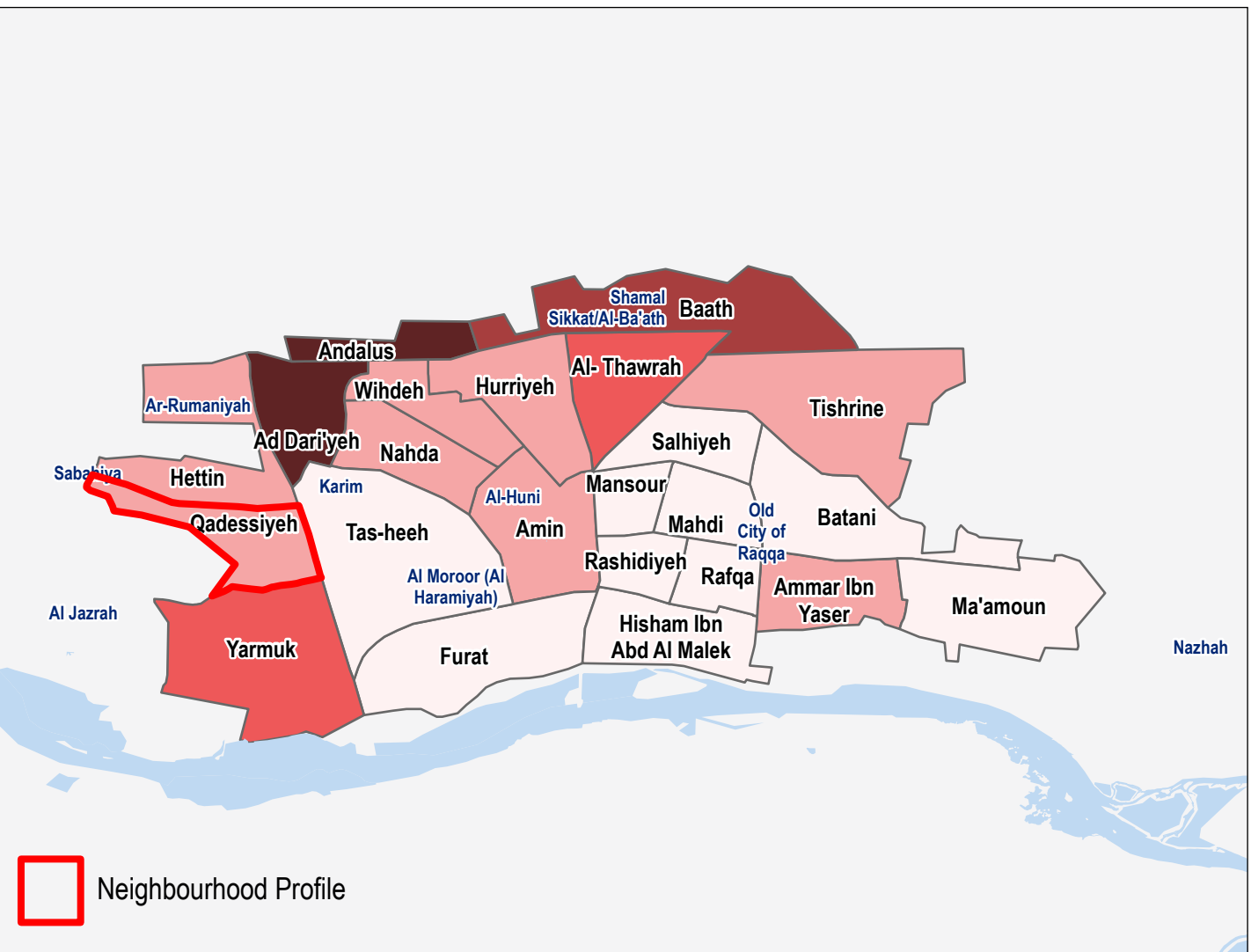
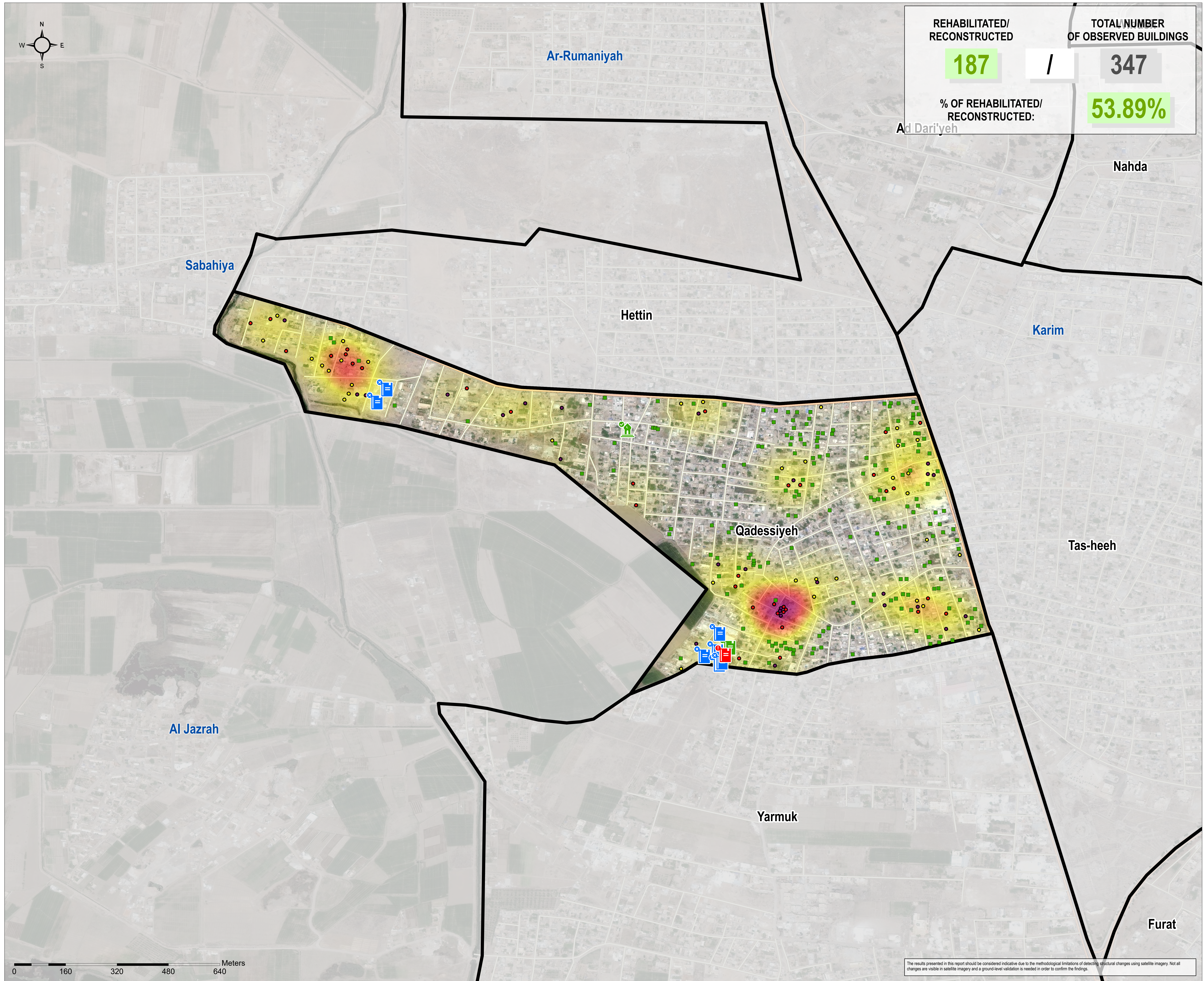
Qadessiyeh Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



| REHABILITATED/RECONSTRUCTED              | TOTAL NUMBER OF OBSERVED BUILDINGS |
|--|------------------------------------|
| 187                                      | 347                                |
| % OF REHABILITATED/RECONSTRUCTED: 53.89% |                                    |



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Satellite imagery: WorldView 2 from 29 April 2021  
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Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
Satellite Data (1): WorldView 2 from 29 April 2021  
Copyright: DigitalGlobe, Inc  
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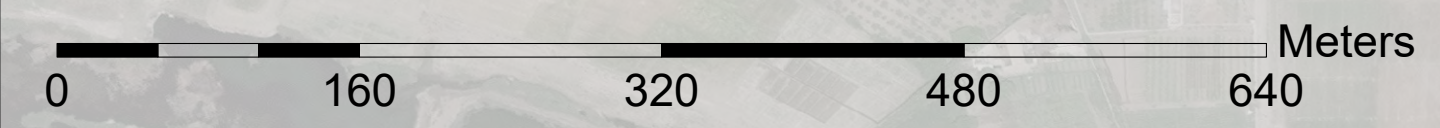
Satellite Data (2): WorldView 3 from 21 October 2017  
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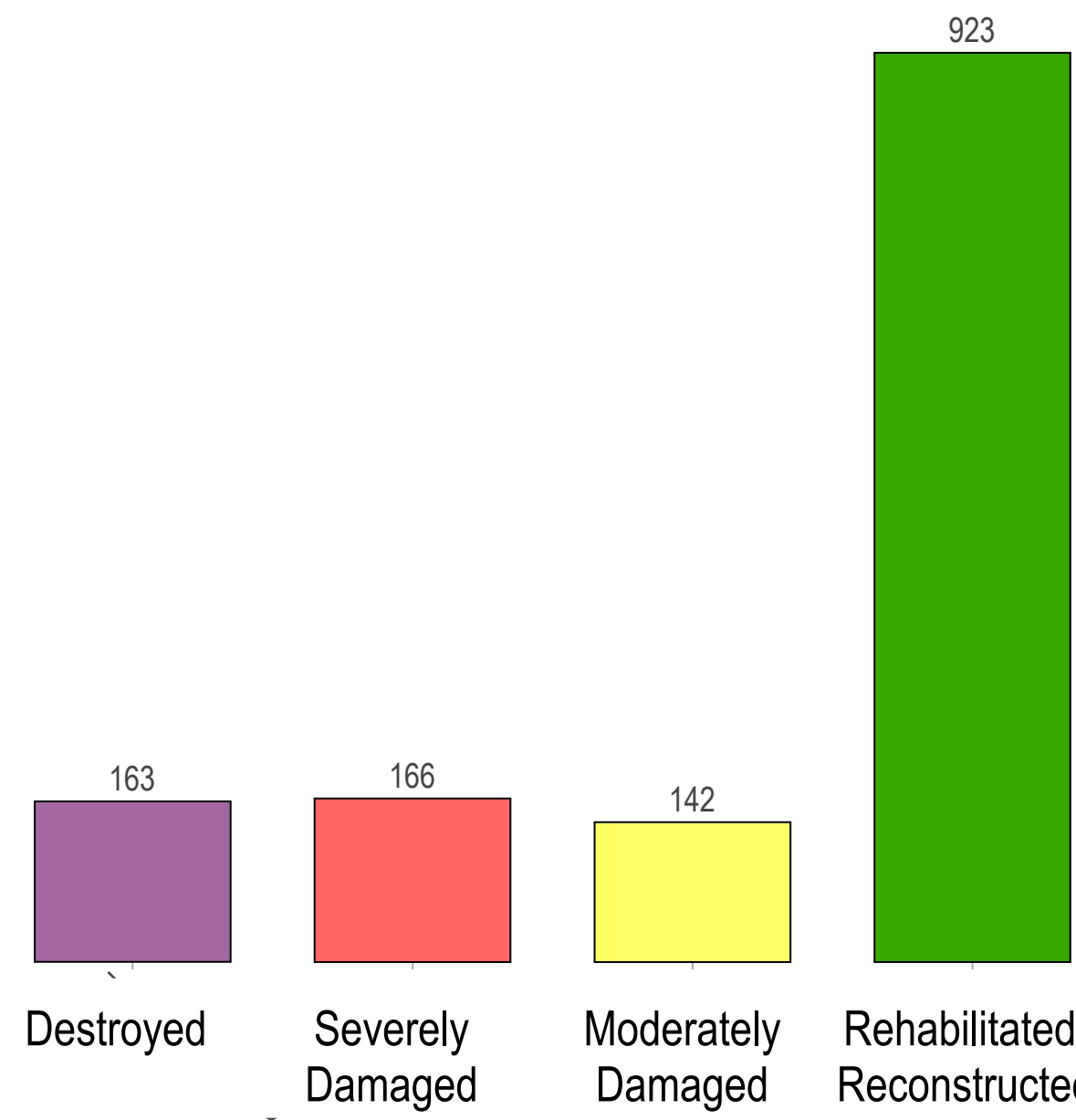
Satellite Data (5): WorldView 2 from 12 February 2014  
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Tas-heeh Damage Counts,  
by # of identified structures

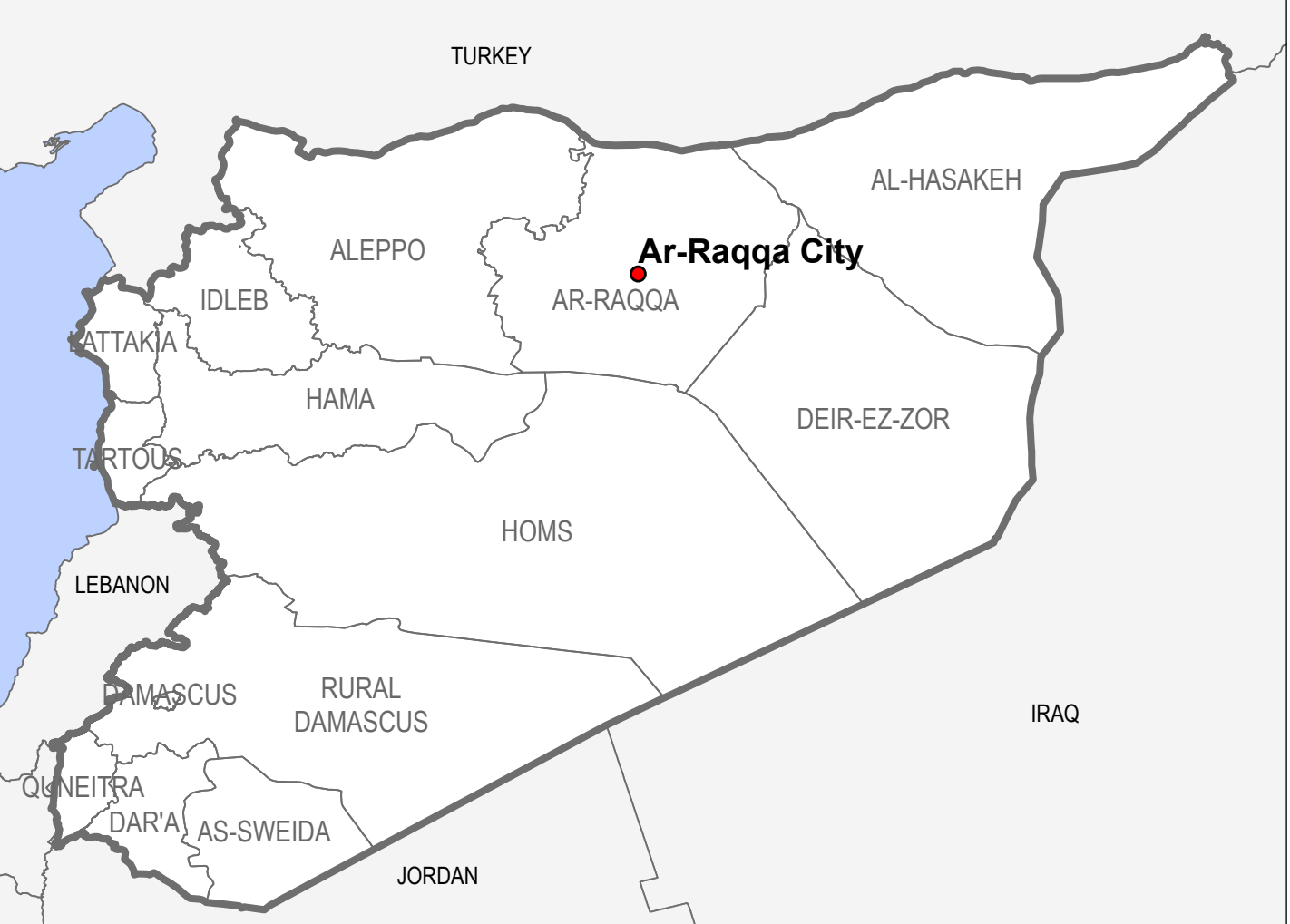
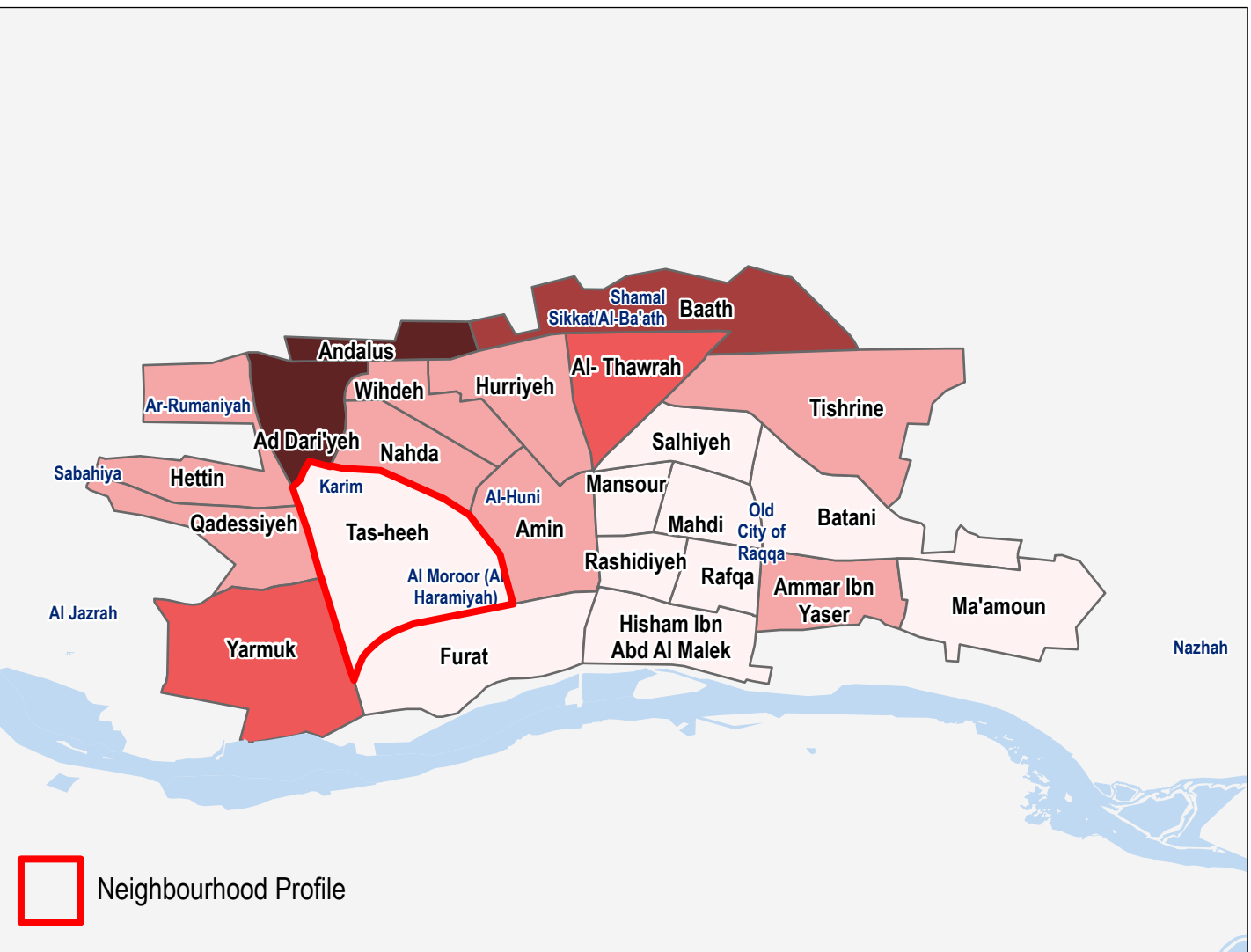
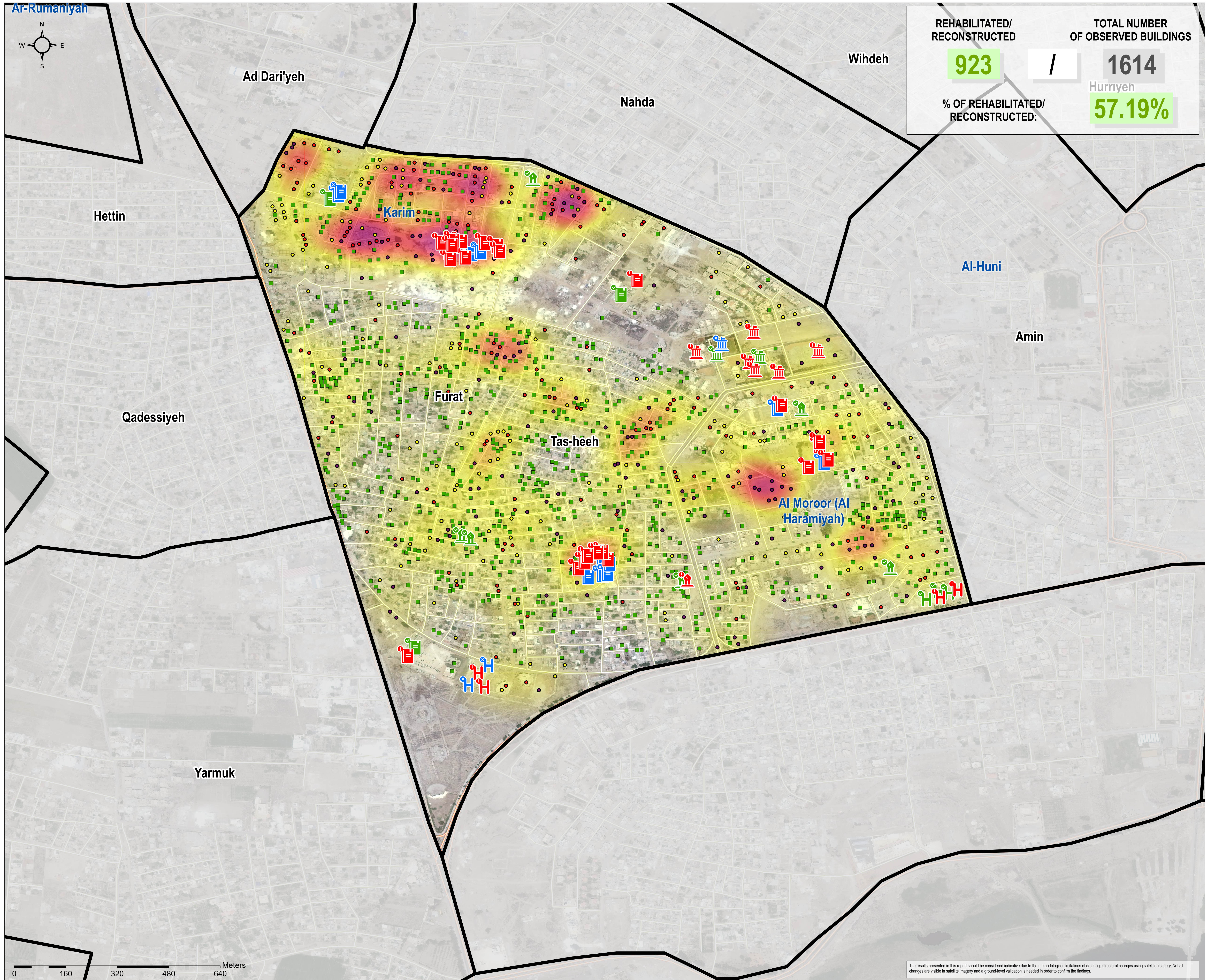


High Damage Severity Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Damaged or Destroyed
- Demolished
- Constructed/Rehabilitated
- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| REHABILITATED/<br>RECONSTRUCTED       | TOTAL NUMBER<br>OF OBSERVED BUILDINGS |
| <b>923</b>                            | <b>1614</b>                           |
| % OF REHABILITATED/<br>RECONSTRUCTED: | Hurriyeh<br><b>57.19%</b>             |



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Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
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Satellite Data (3): WorldView 2 from 03 February 2017  
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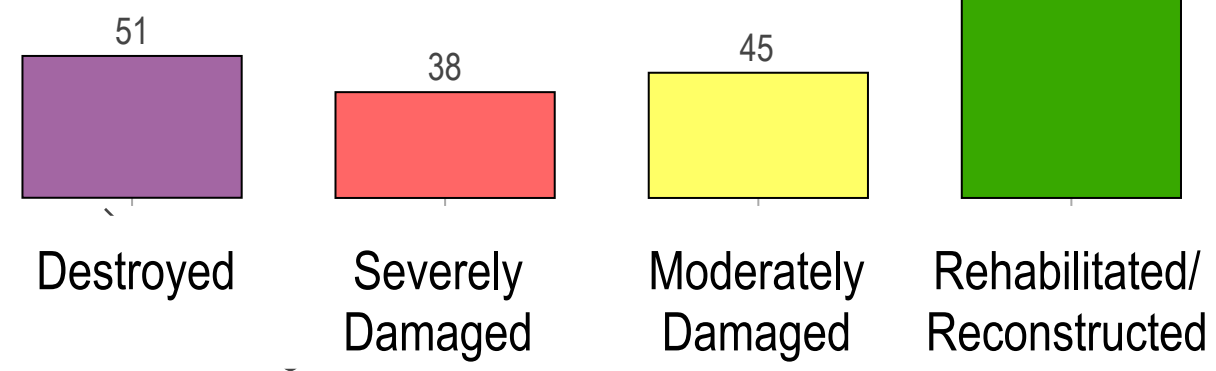
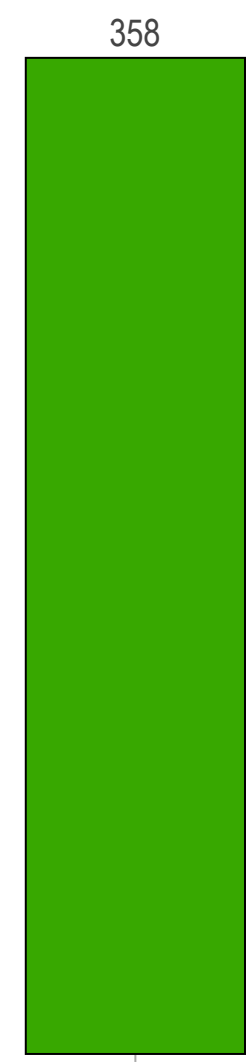
Satellite Data (4): Pleiades from 29 May 2015  
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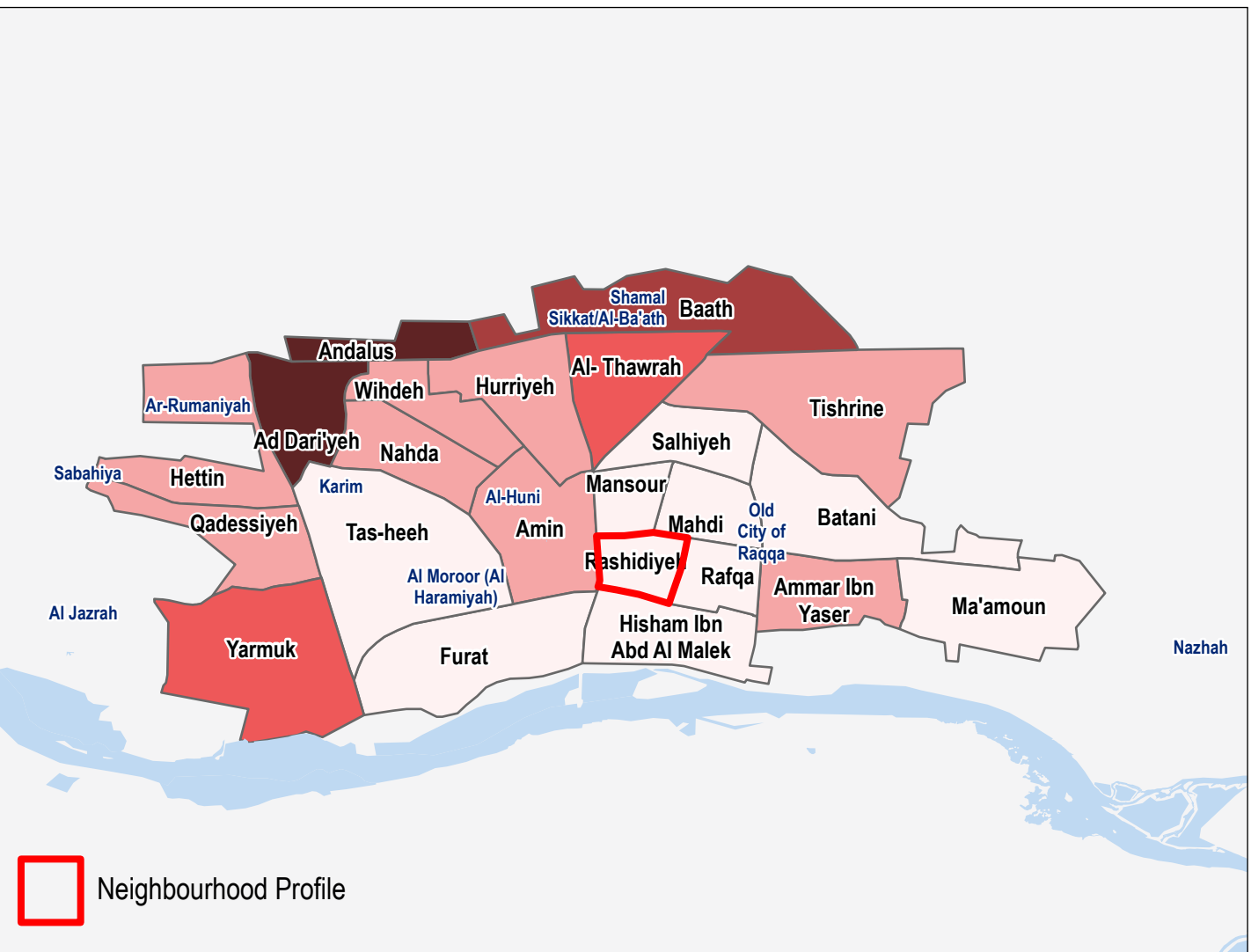
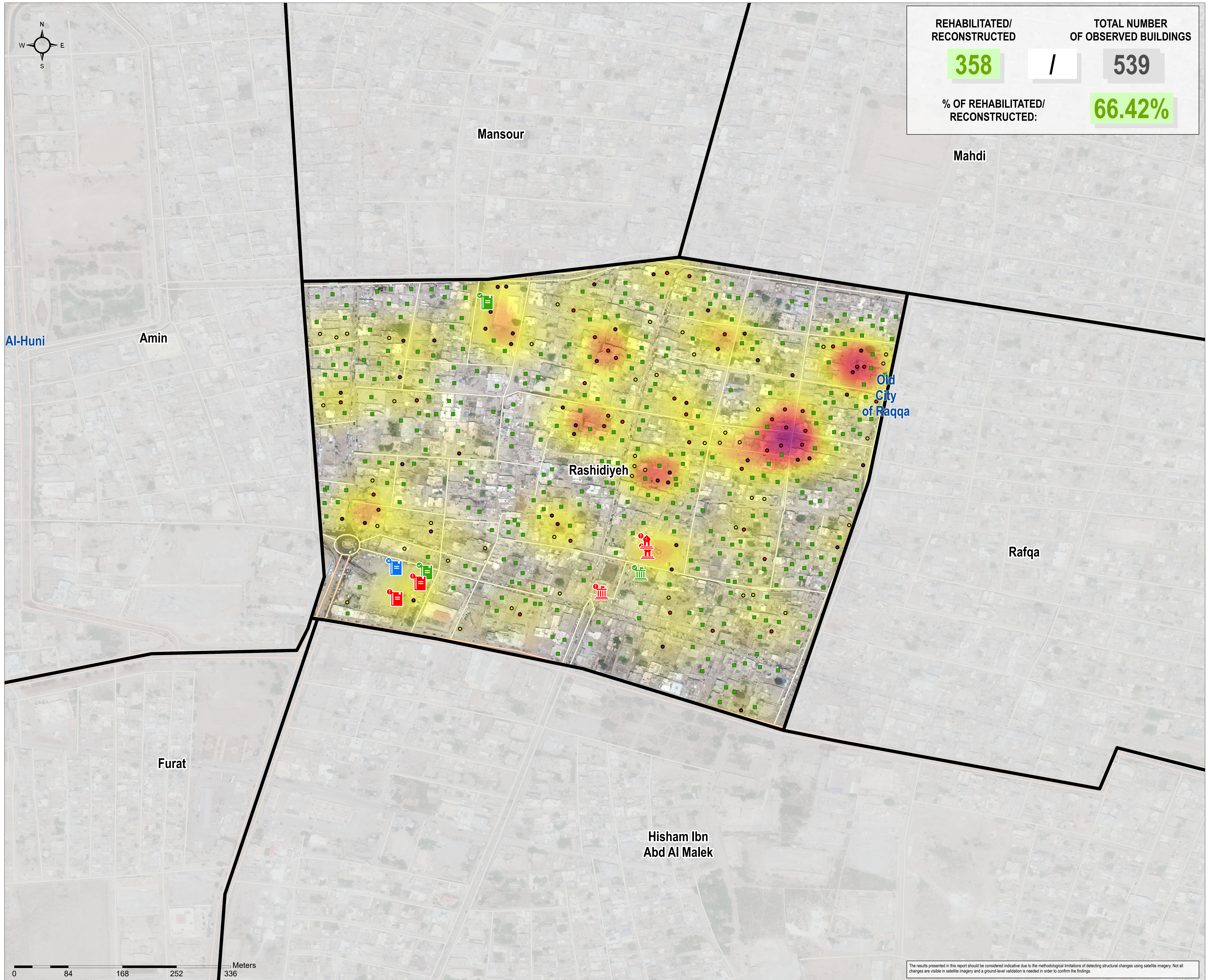
Rashidiyeh Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary

|                                   |                                    |
|-----------------------------------|------------------------------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
| <b>358</b>                        | <b>539</b>                         |
| % OF REHABILITATED/RECONSTRUCTED: | <b>66.42%</b>                      |



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Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
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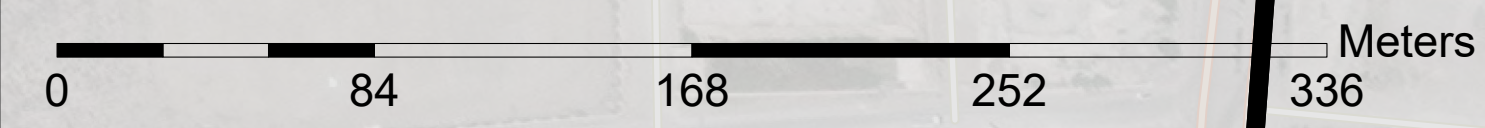
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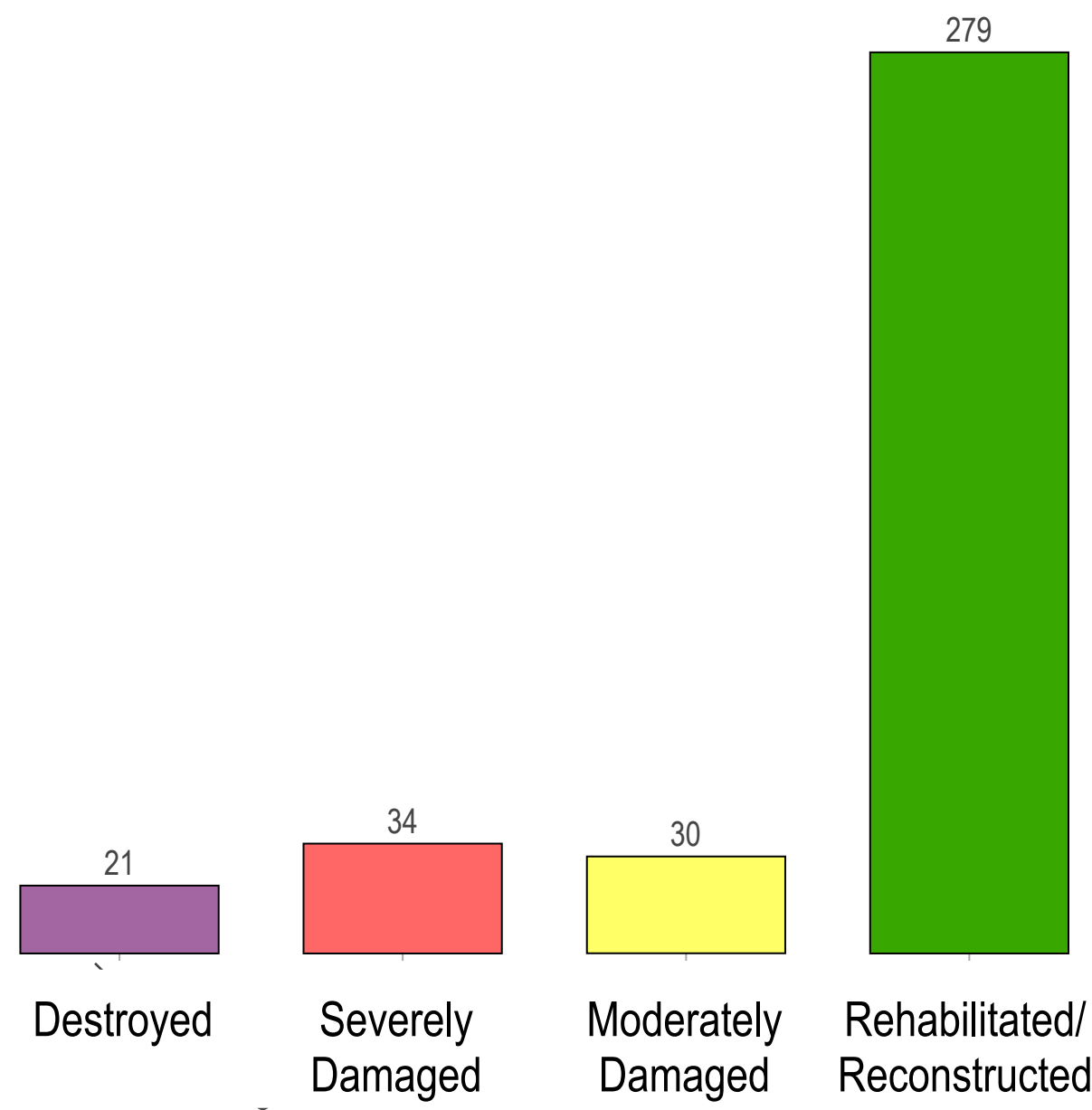
Satellite Data (5): WorldView 2 from 12 February 2014  
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Satellite Data (5): WorldView 1 from 22 October 2013  
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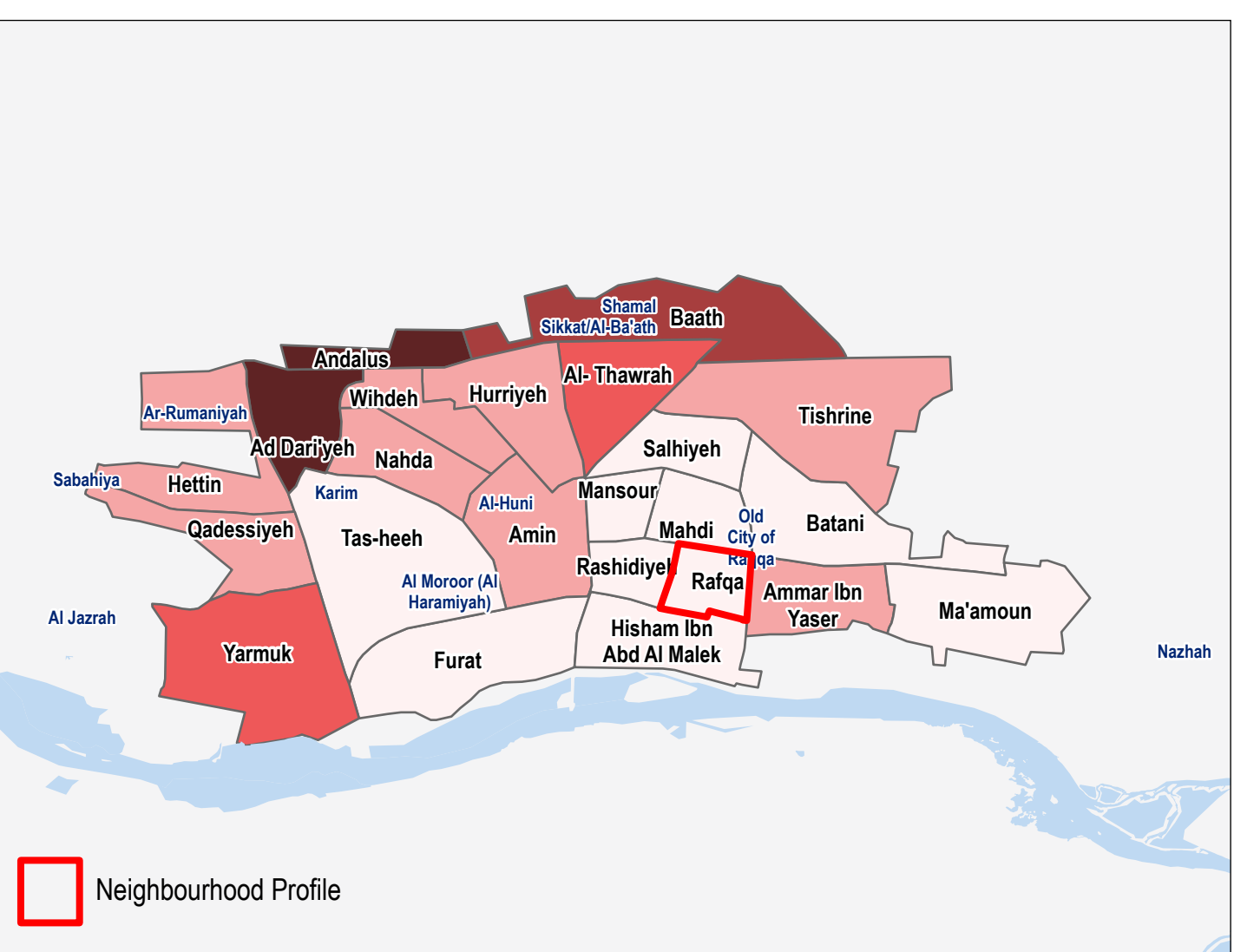
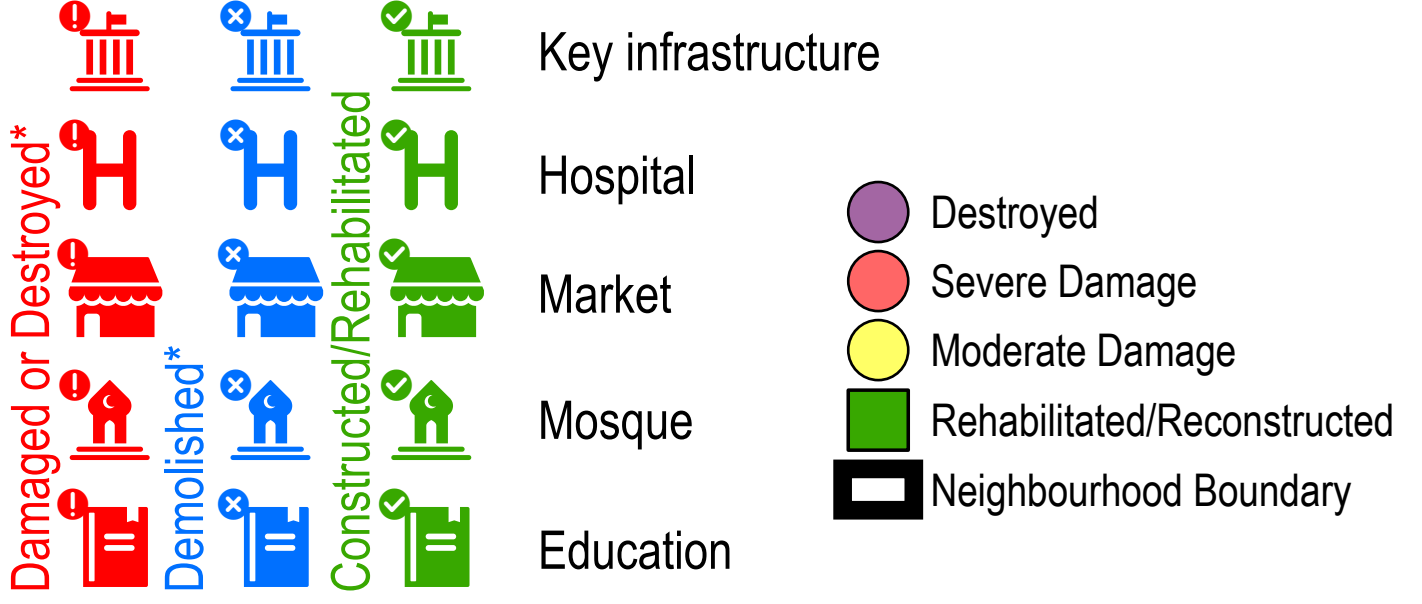


The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Rafqa Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

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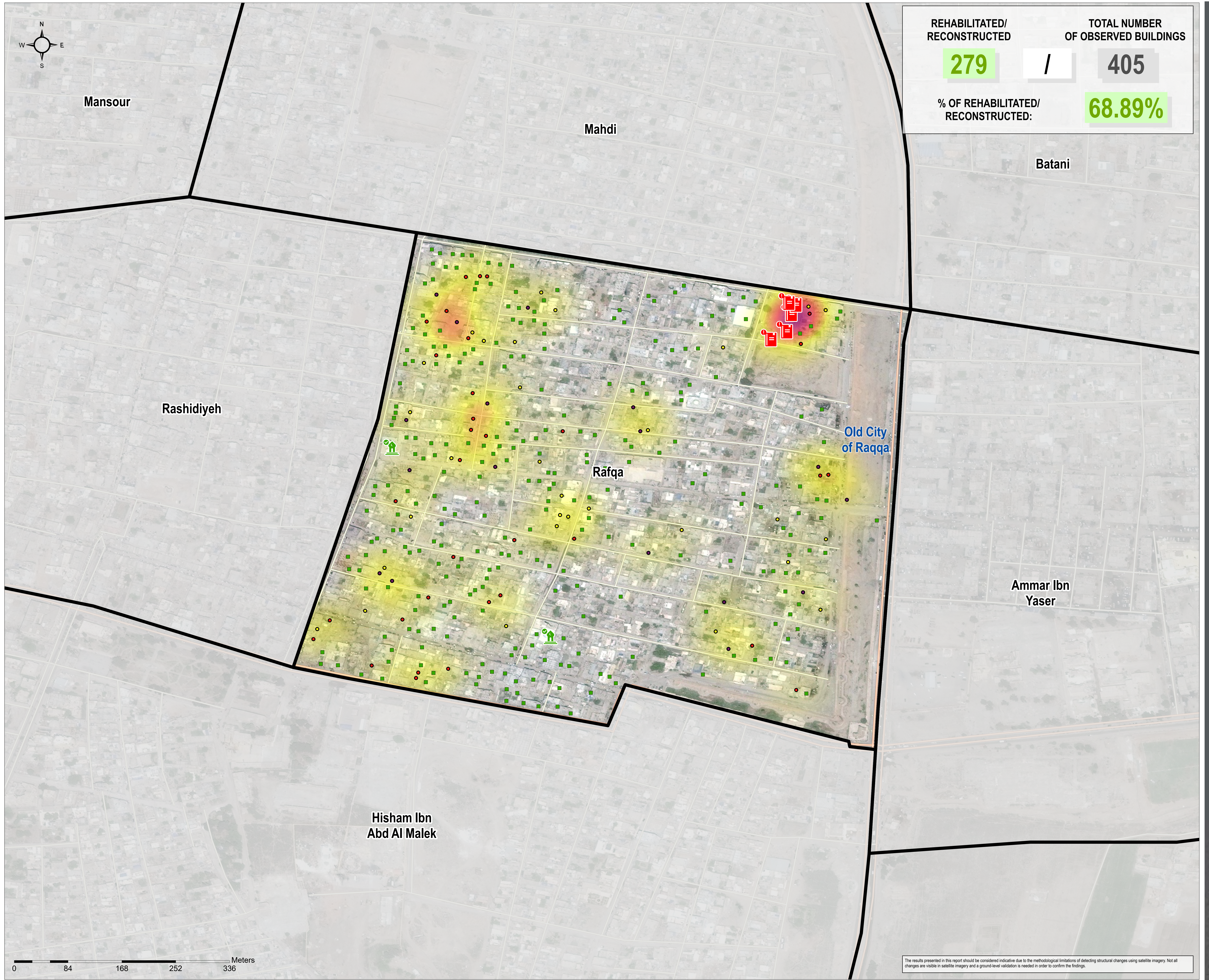
Satellite Data (2): WorldView 3 from 21 October 2017  
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Satellite Data (3): WorldView 2 from 03 February 2017  
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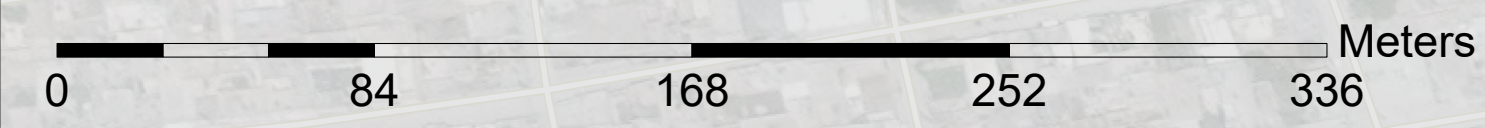
Satellite Data (4): Pleidas from 29 May 2015  
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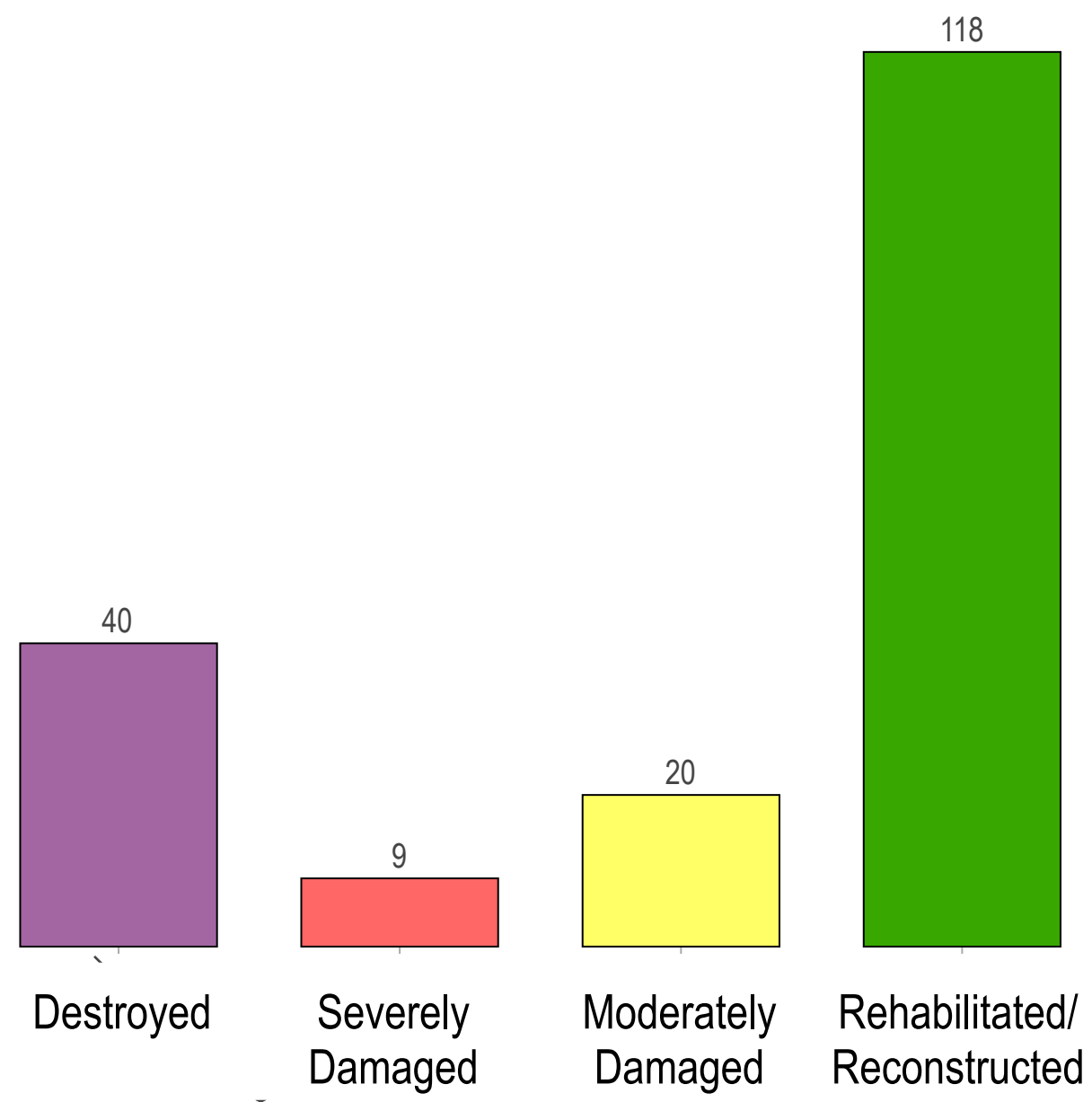


| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
|-----------------------------------|------------------------------------|
| 279                               | 405                                |
| /                                 |                                    |
| % OF REHABILITATED/RECONSTRUCTED: | 68.89%                             |



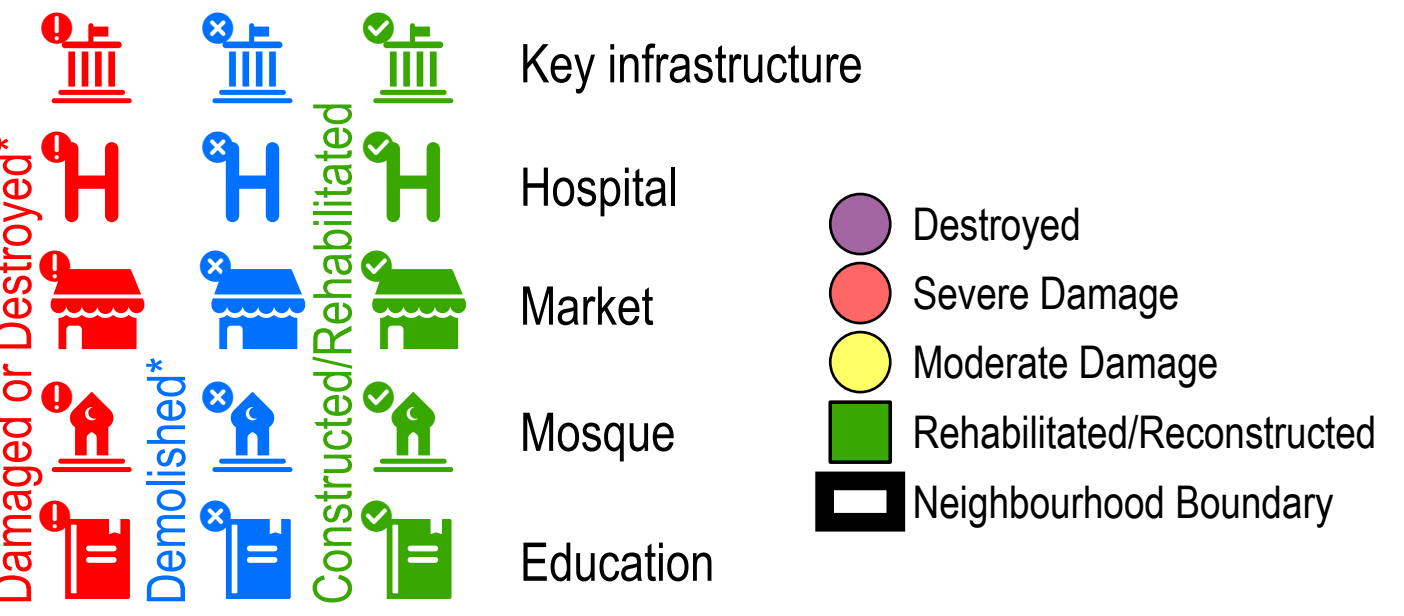
The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Ammar Ibn Yaser Damage Counts, by # of identified structures

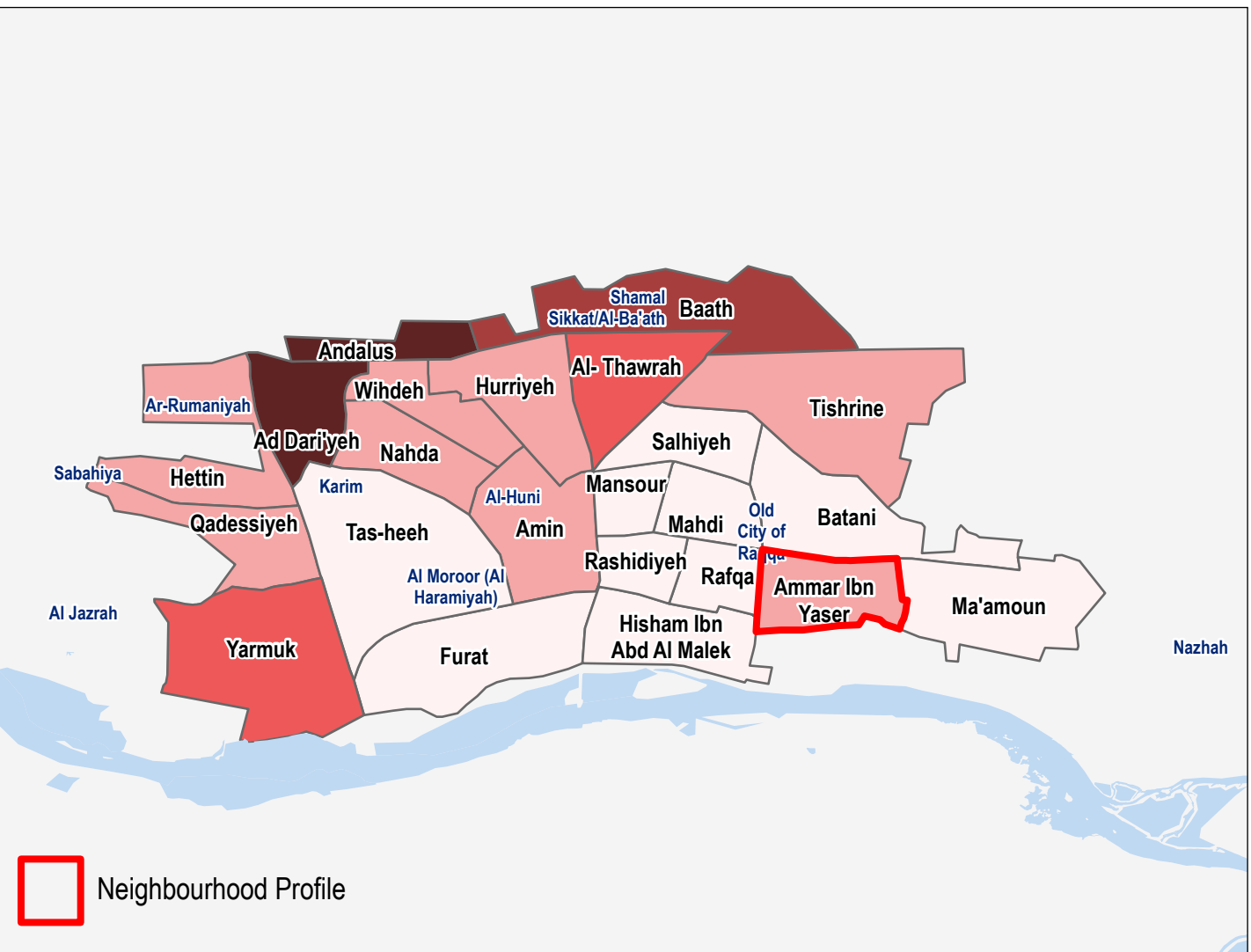
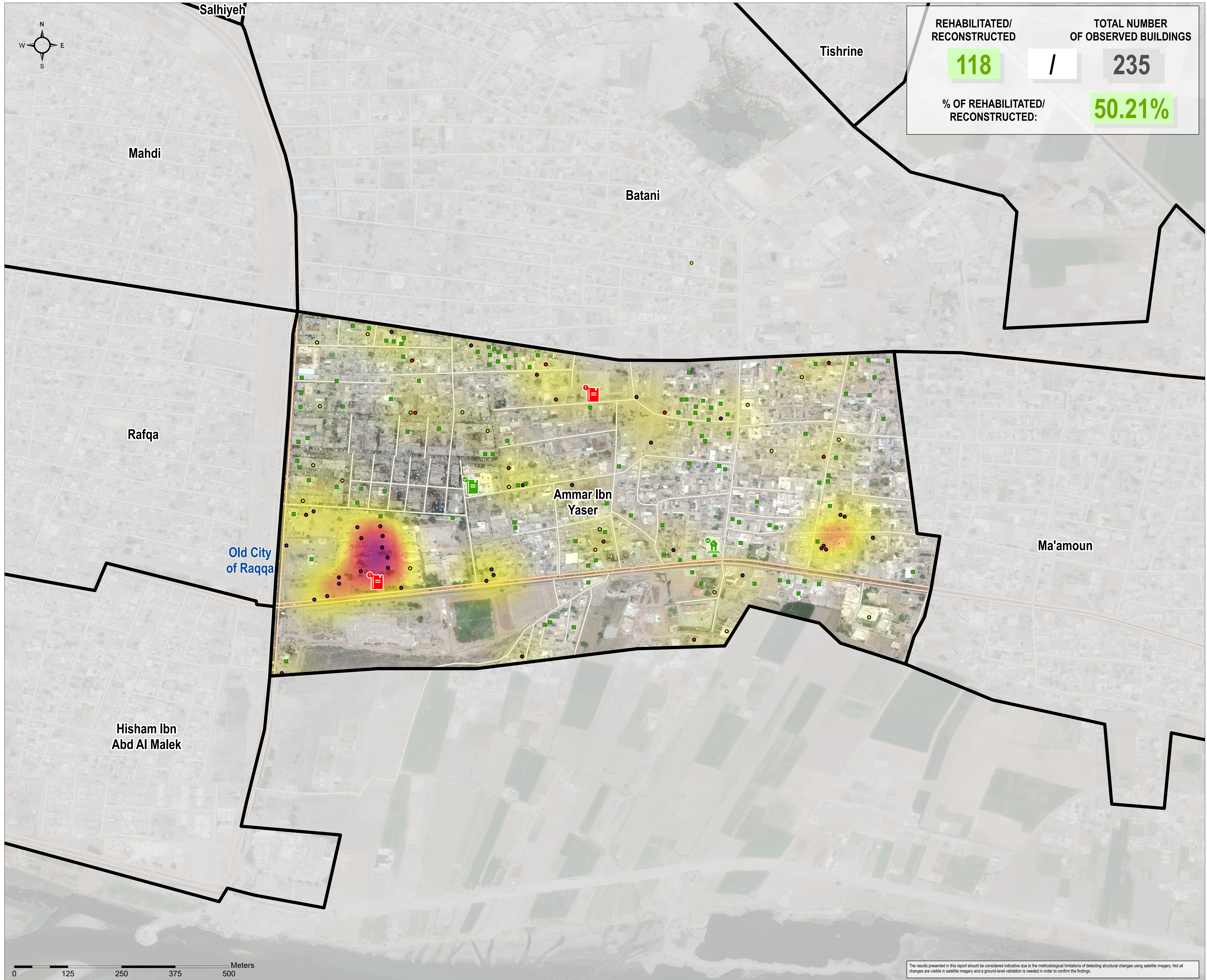


High Damage Severity / Low Damage Severity

\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



|                                   |                                    |
|-----------------------------------|------------------------------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
| <b>118</b>                        | <b>235</b>                         |
| % OF REHABILITATED/RECONSTRUCTED: | <b>50.21%</b>                      |



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

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Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
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Copyright: DigitalGlobe, Inc  
Source: US Department of State, Humanitarian Information Unit, NextView License.

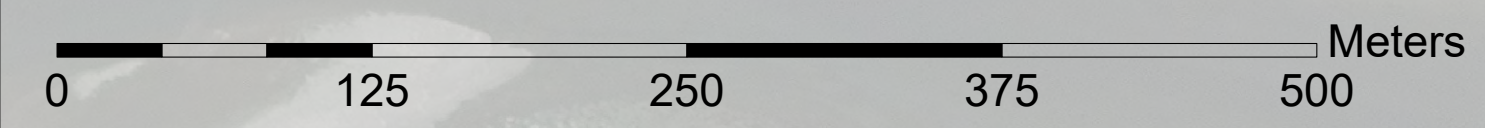
Satellite Data (2): WorldView 3 from 21 October 2017  
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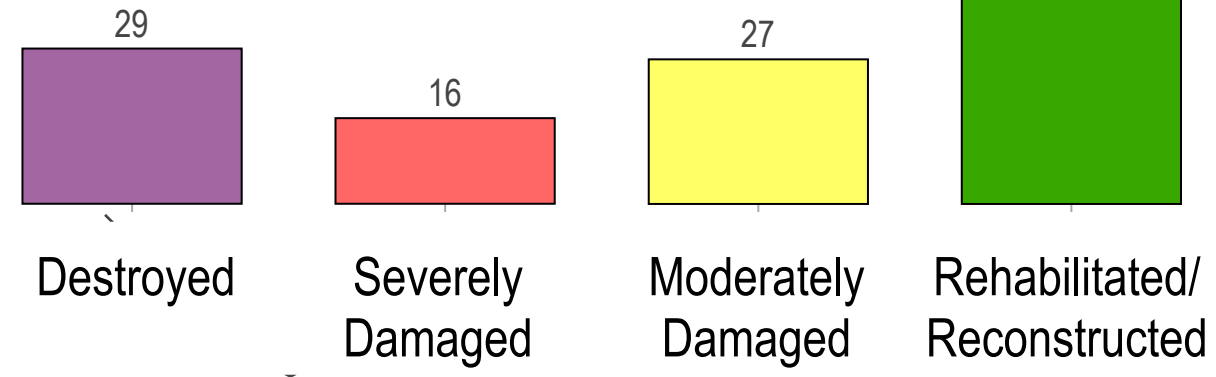
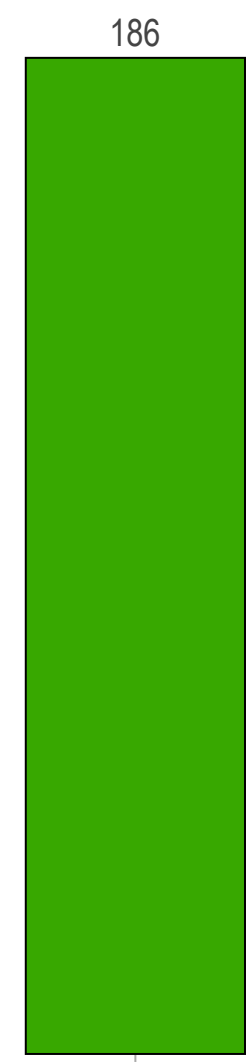
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Ma'amoun Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

**Key Infrastructure**

- Hospital (Green icon)
- Market (Blue icon)
- Mosque (Green icon)
- Education (Green icon)

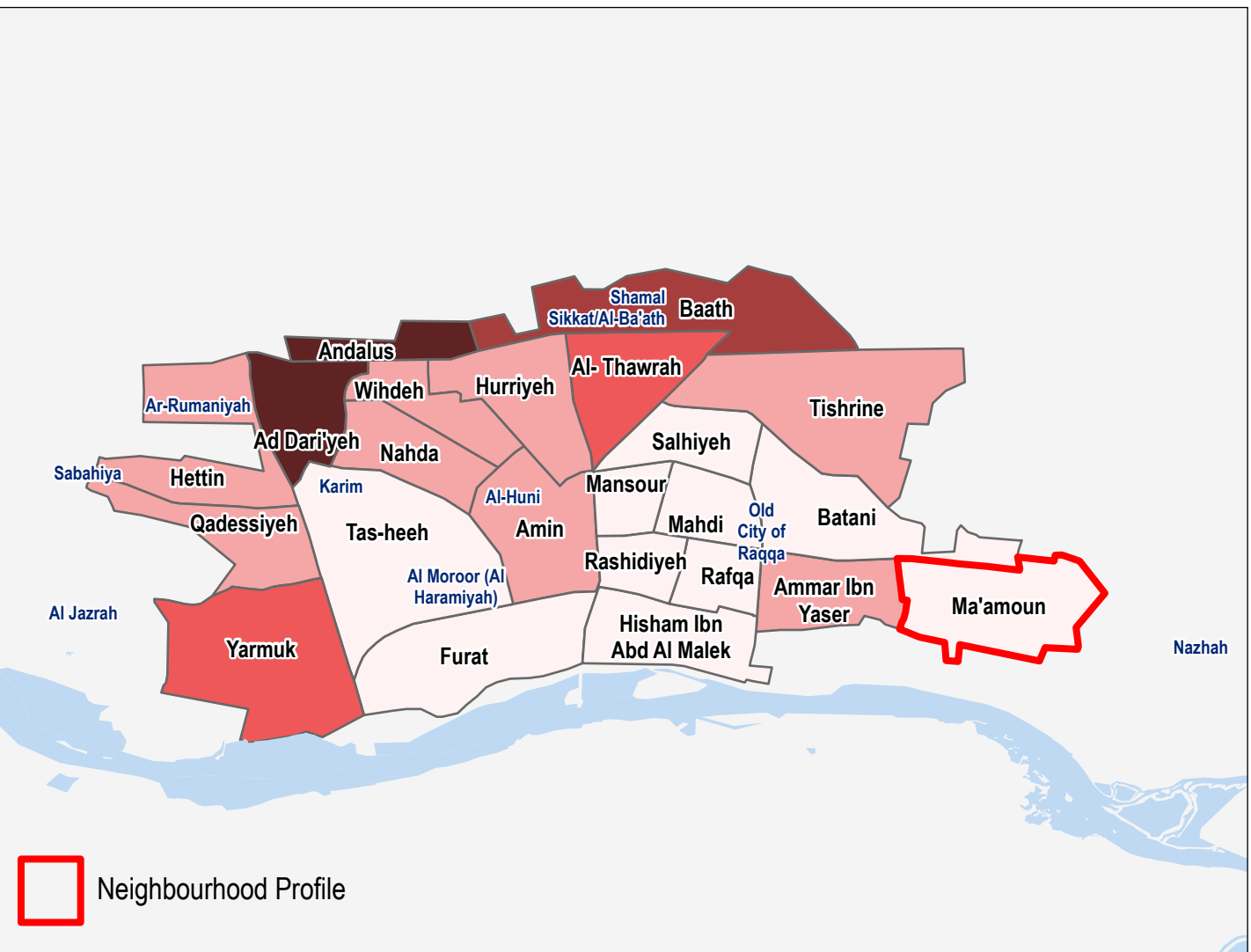
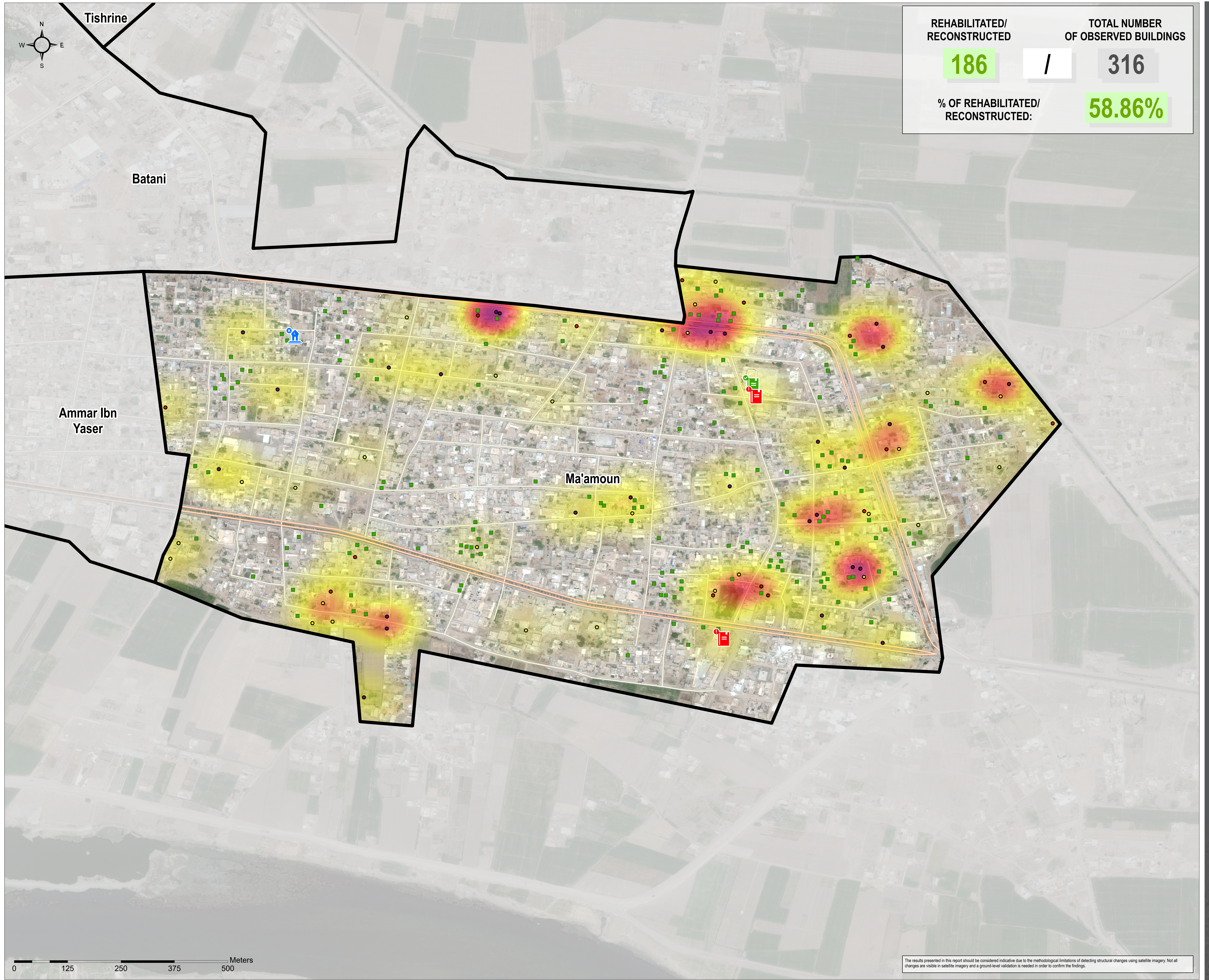
**Damage Status Legend**

- Destroyed (Purple circle)
- Severe Damage (Red circle)
- Moderate Damage (Yellow circle)
- Rehabilitated/Reconstructed (Green circle)
- Neighbourhood Boundary (Black outline)

**Other Infrastructure**

- Key Infrastructure (Green icon)
- Hospital (Blue icon)
- Market (Red icon)
- Mosque (Blue icon)
- Education (Red icon)

| REHABILITATED/RECONSTRUCTED              | TOTAL NUMBER OF OBSERVED BUILDINGS |
|--|------------------------------------|
| <b>186</b>                               | <b>316</b>                         |
| /  |                                    |
| <b>% OF REHABILITATED/RECONSTRUCTED:</b> | <b>58.86%</b>                      |



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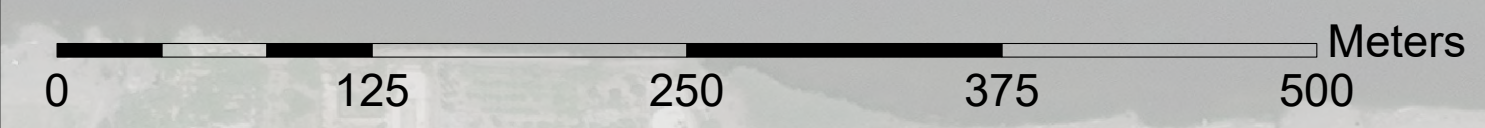
**Satellite Data (3):** WorldView 2 from 03 February 2017  
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**Road Data:** OpenStreetMap  
**Admin Data:** UN OCHA  
**Analysis:** UNITAR-UNOSAT  
**Production:** REACH Initiatives

**Satellite Data (4):** Pleiades from 29 May 2015  
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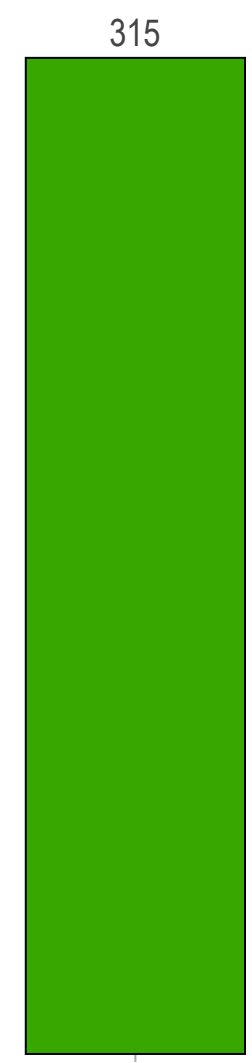
**Satellite Data (5):** WorldView 2 from 12 February 2014  
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Hisham Ibn Abd Al Malek Damage Counts, by # of identified structures



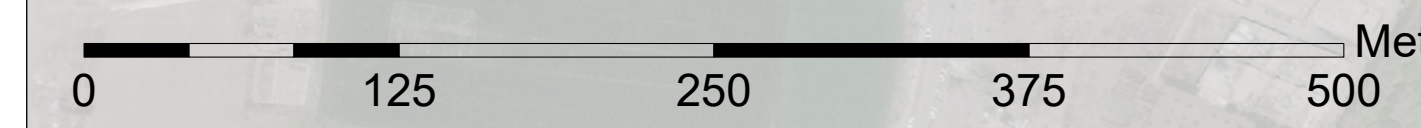
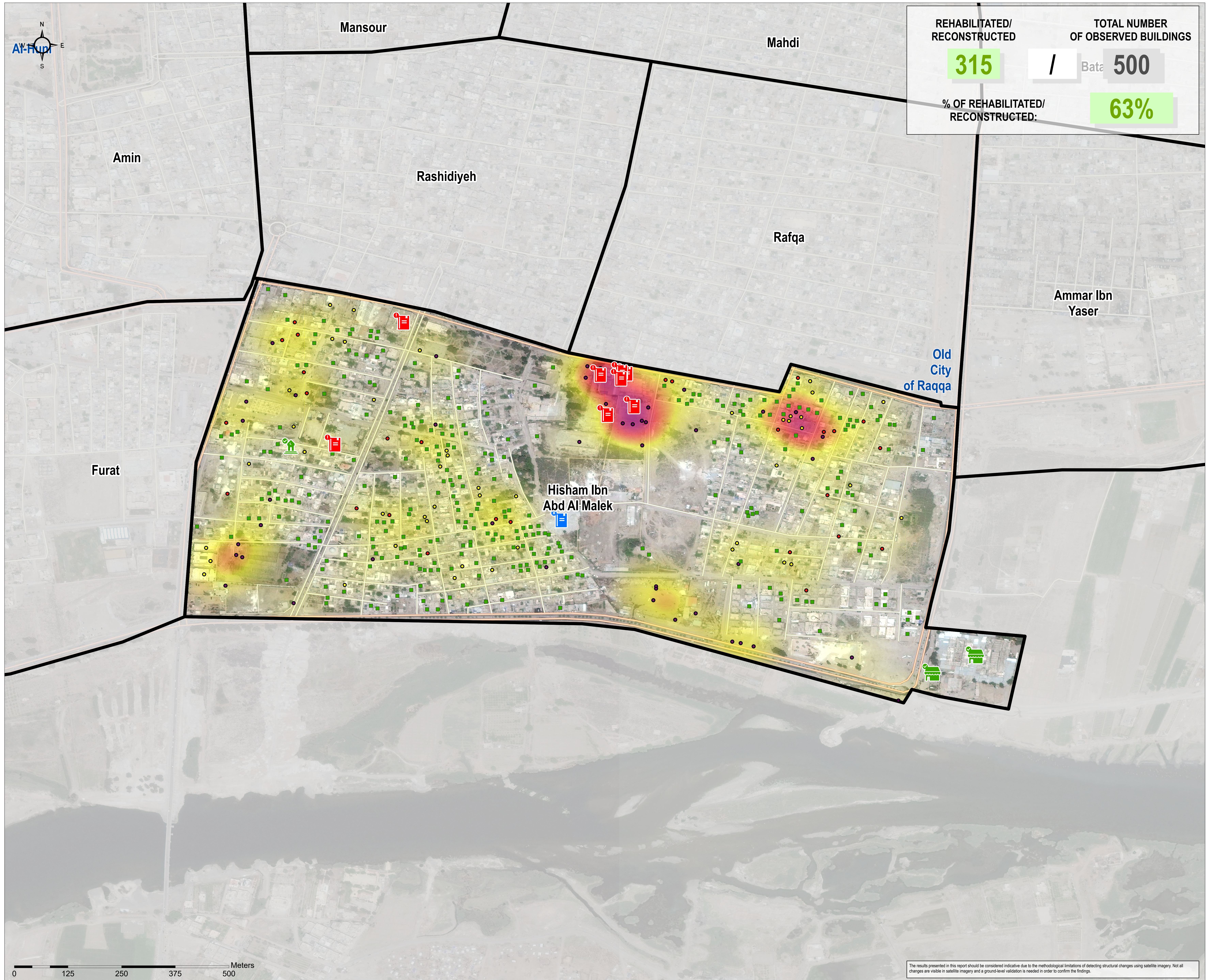
Destroyed    Severely Damaged    Moderately Damaged    Rehabilitated/Reconstructed

High Damage Severity    Low Damage Severity

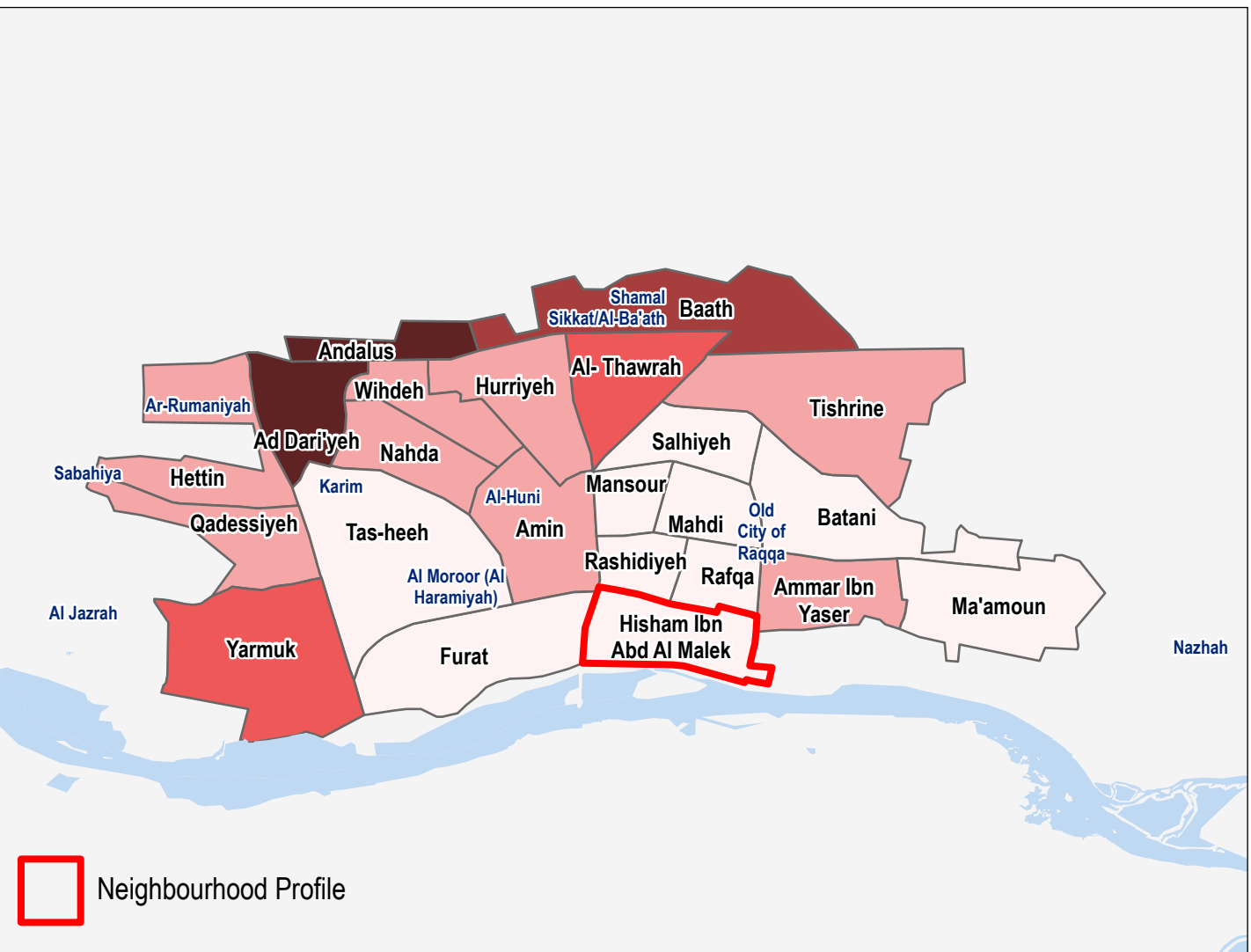
\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary

|                                   |                                    |
|-----------------------------------|------------------------------------|
| REHABILITATED/RECONSTRUCTED       | TOTAL NUMBER OF OBSERVED BUILDINGS |
| <b>315</b>                        | 500                                |
| % OF REHABILITATED/RECONSTRUCTED: | <b>63%</b>                         |



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Production: REACH Initiatives

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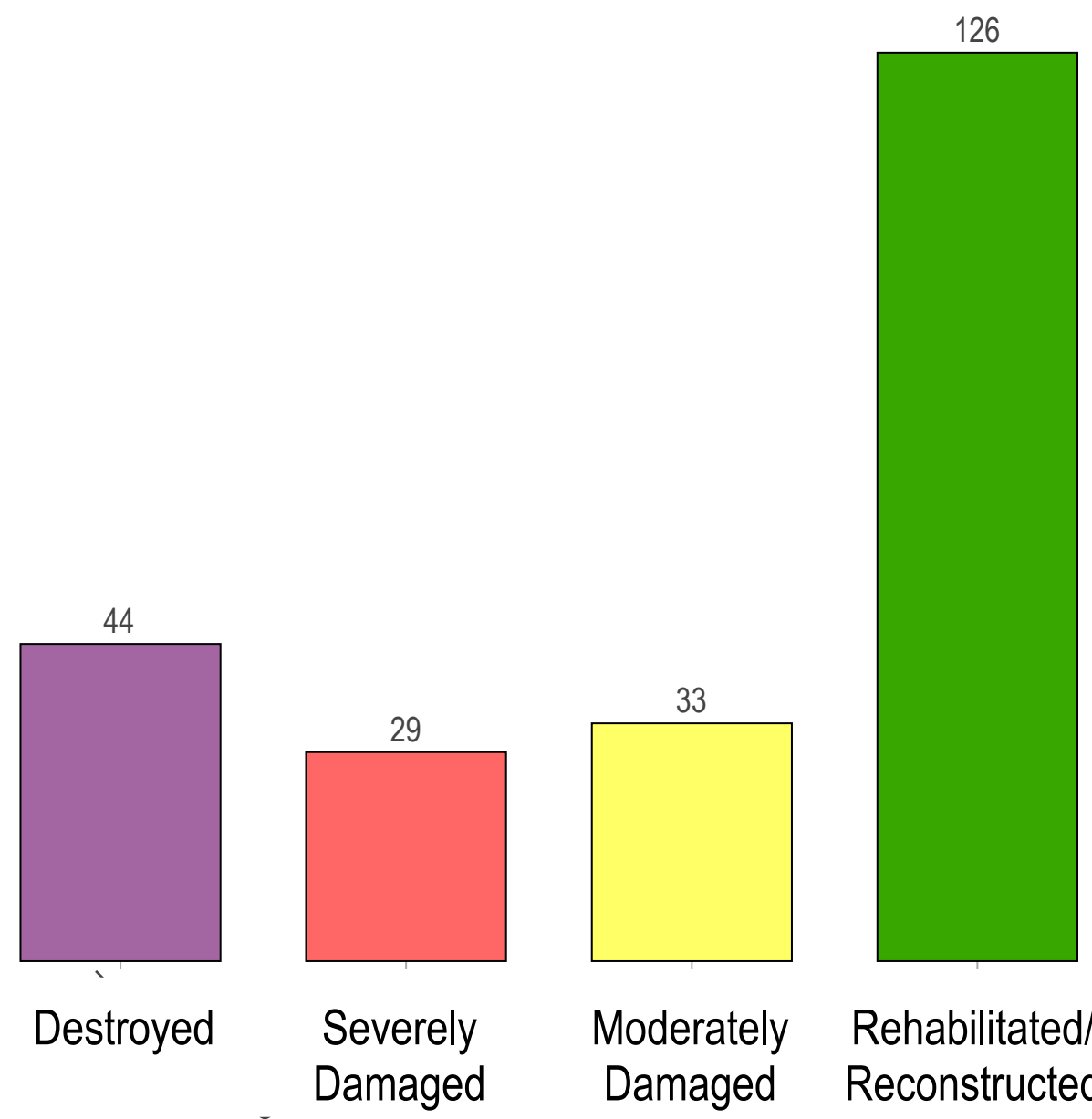
Satellite Data (3): WorldView 2 from 03 February 2017  
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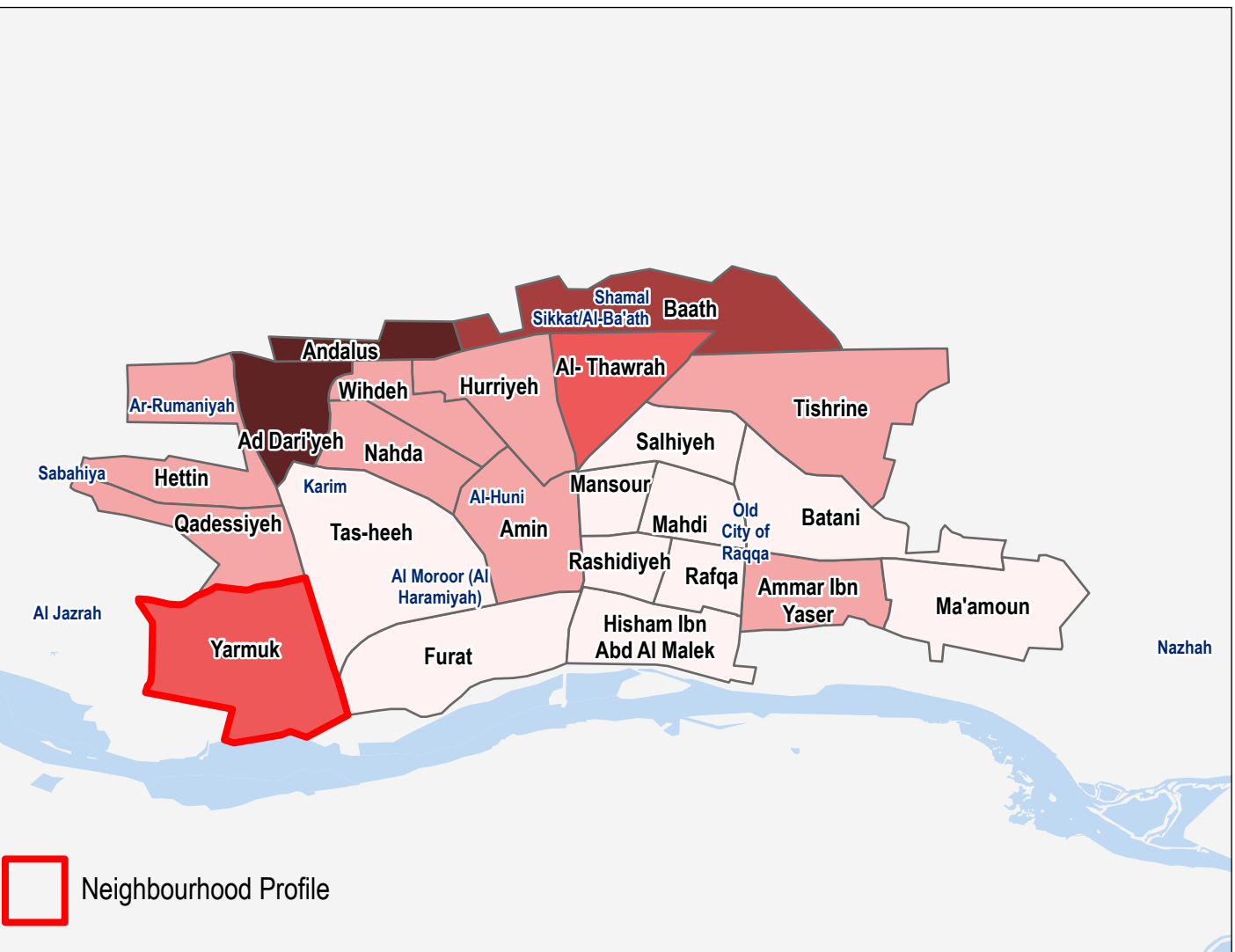
Satellite Data (5): WorldView 1 from 22 October 2013  
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Yarmuk Damage Counts,  
by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged

- Key infrastructure
- Hospital
- Market
- Mosque
- Education
- Destroyed
- Severe Damage
- Moderate Damage
- Rehabilitated/Reconstructed
- Neighbourhood Boundary



Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

Data sources:  
Satellite imagery: WorldView 2 from 29 April 2021  
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Source: US Department of State, Humanitarian Information Unit, NextView License.

Road Data: OpenStreetMap  
Admin Data: UN OCHA  
Analysis: UNITAR-UNOSAT  
Production: REACH Initiatives

Analysis Conducted comparing:  
Satellite Data (1): WorldView 2 from 29 April 2021  
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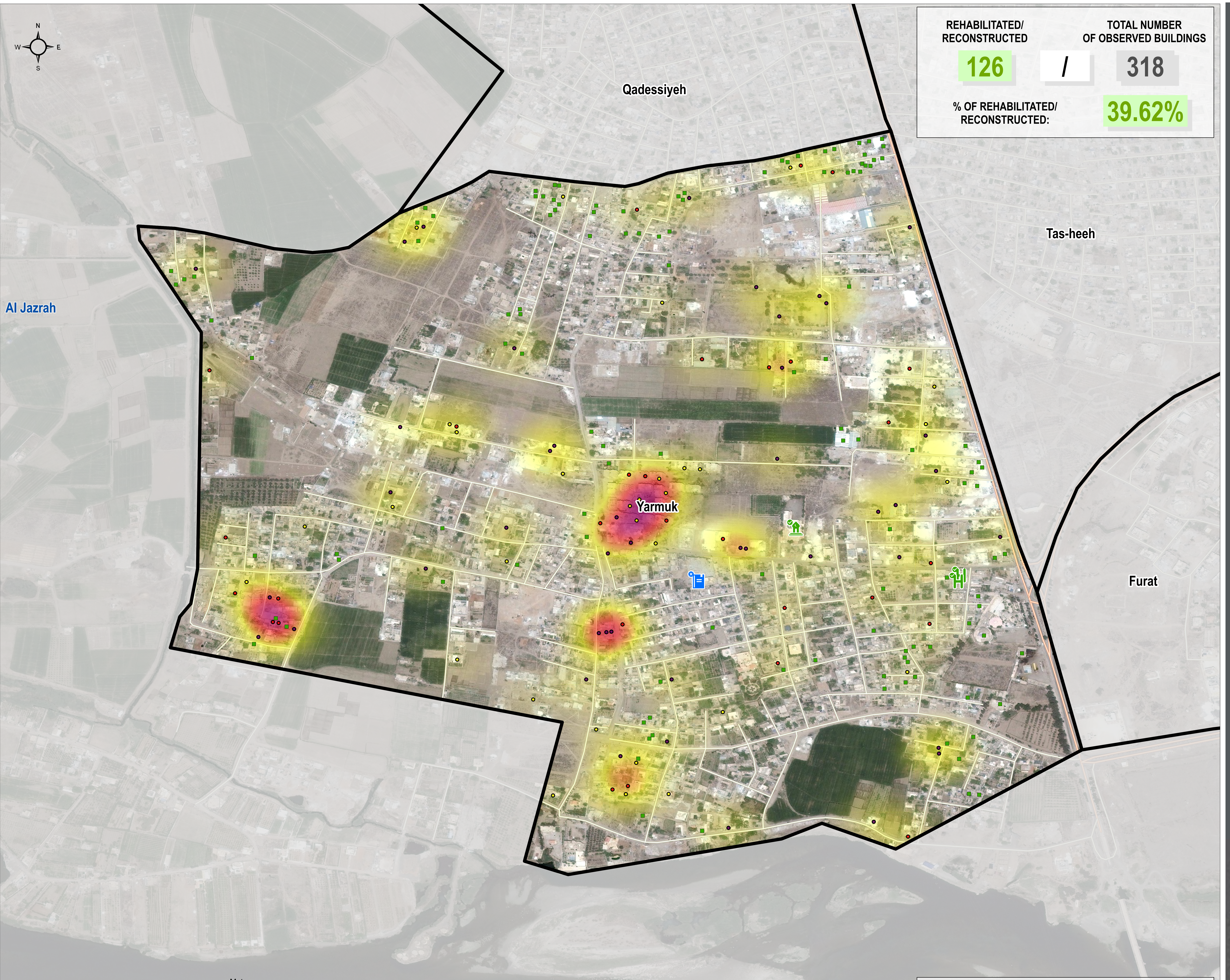
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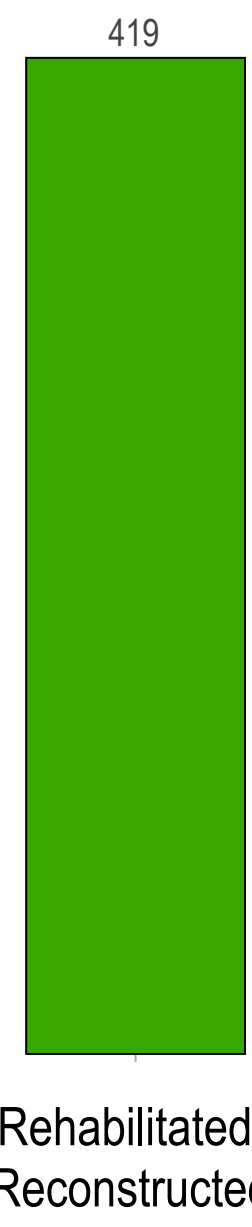


| REHABILITATED/<br>RECONSTRUCTED       | TOTAL NUMBER<br>OF OBSERVED BUILDINGS |
|---------------------------------------|---------------------------------------|
| 126                                   | 318                                   |
| /                                     |                                       |
| % OF REHABILITATED/<br>RECONSTRUCTED: | 39.62%                                |

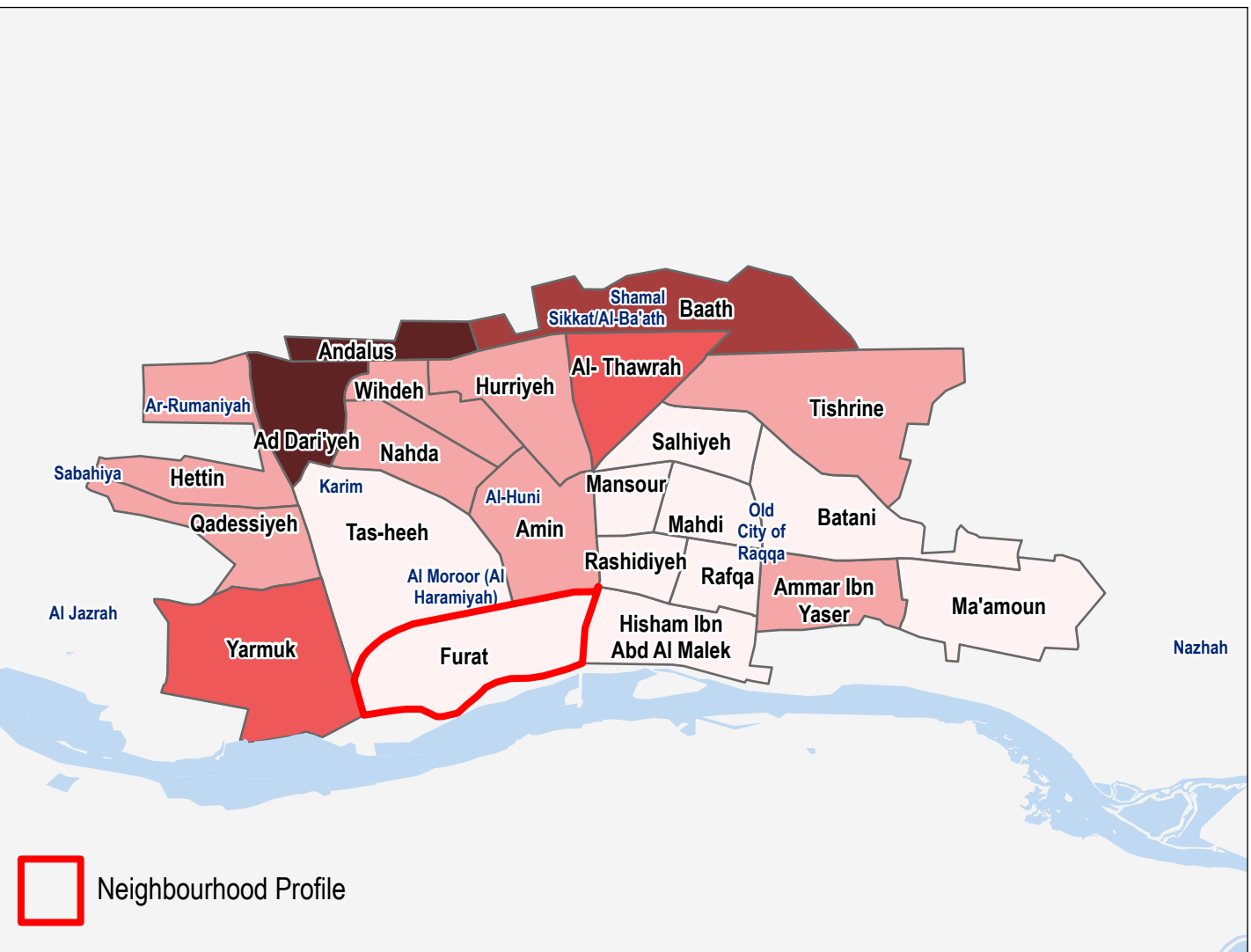
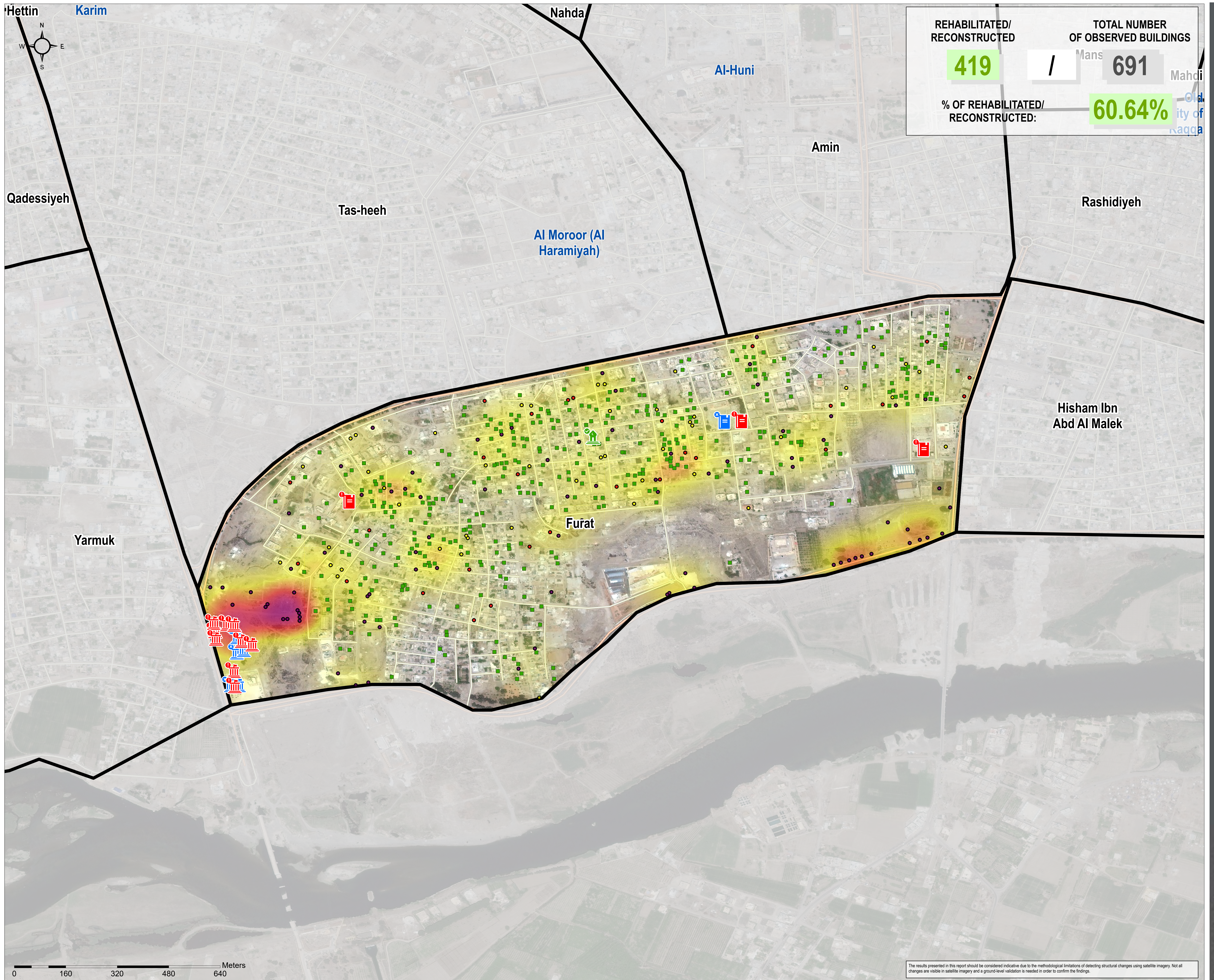
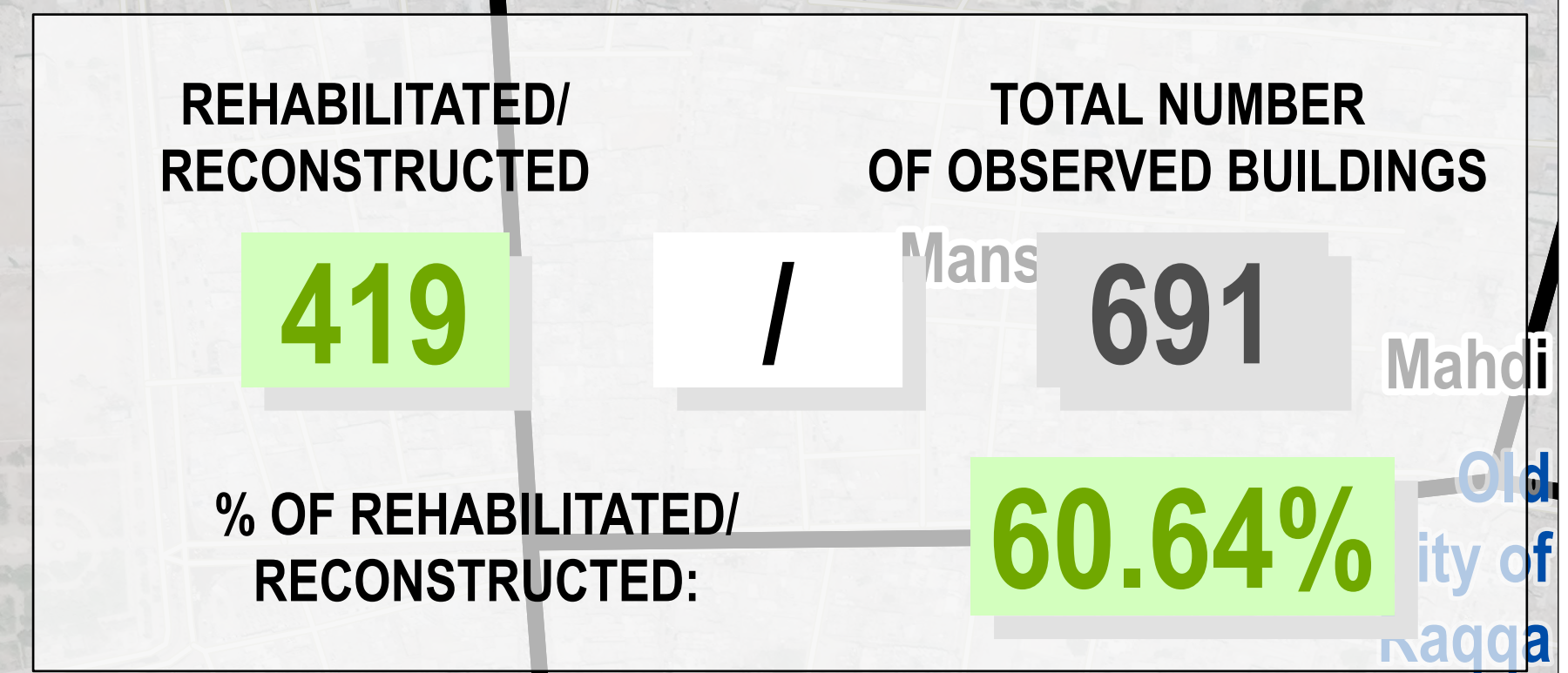
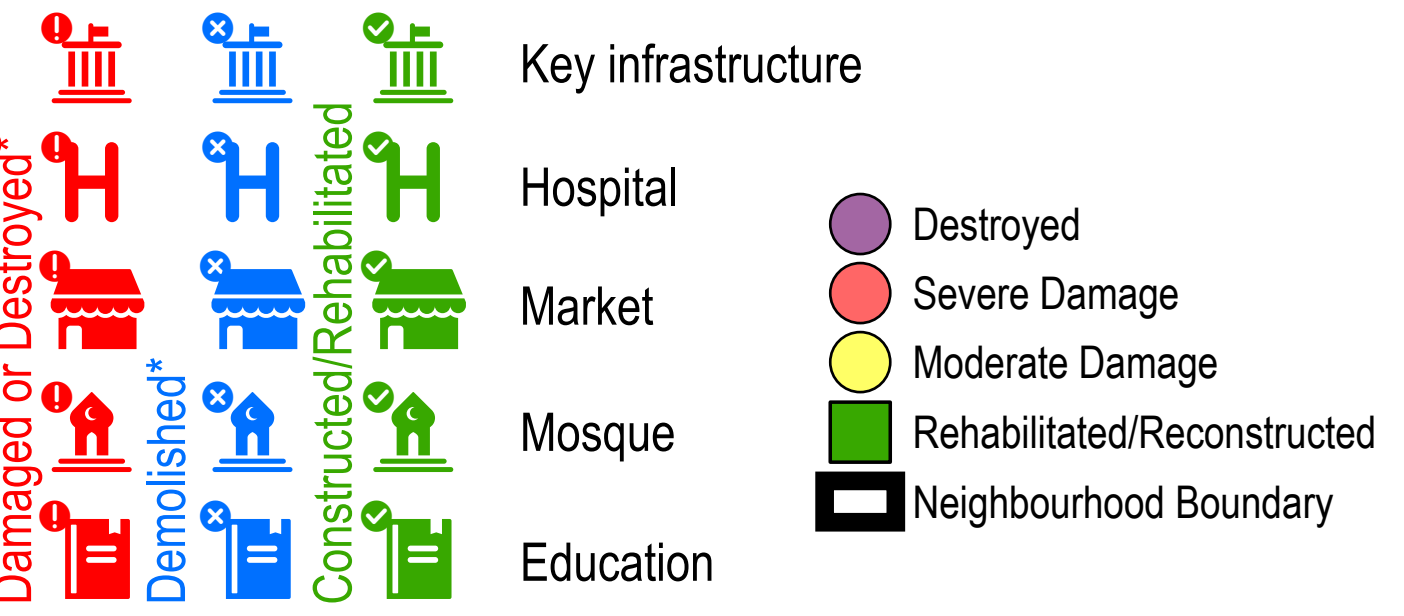


The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.

Furat Damage Counts, by # of identified structures



\*Severity calculated based on density of damaged infrastructure and weighted by scale of damage based on: destroyed, severely damaged or moderately damaged



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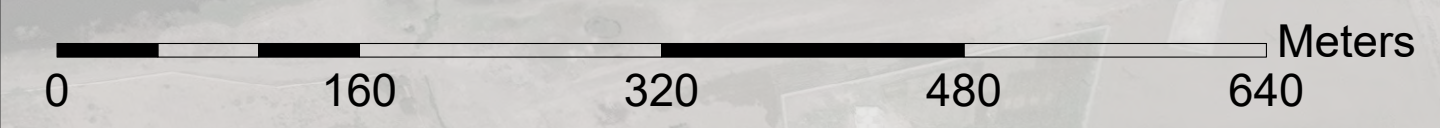
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The results presented in this report should be considered indicative due to the methodological limitations of detecting structural changes using satellite imagery. Not all changes are visible in satellite imagery and a ground-level validation is needed in order to confirm the findings.