

HUMANITARIAN ATLAS Ar-Raqqa City Syrian Arab Republic

الأطلس الإنساني
مدينة الرقة
الجمهورية العربية السورية



Infrastructure Damage Reference Maps

الخرائط المرجعية لأضرار البنية التحتية

Overview

This city atlas provides information regarding the severity of damage to structures across 23 neighbourhoods in Ar-Raqqa. In partnership with UNITAR's Operational Satellite Applications Programme - UNOSAT, and The International NGO Safety Organisation - INSO, REACH was able to identify key-infrastructure that has likely been damaged or destroyed.

Through this comprehensive analysis on the specific location and classification of structural damage, the atlas aims to be a tool for local government and humanitarian organizations to facilitate in the planning and implementation of humanitarian activities in Ar-Raqqa.

Context

Between November 2016 and October 2017, the campaign to expel the group known as the Islamic State of Iraq and the Levant (ISIL) from Ar-Raqqa governorate led to an escalation of conflict across the area. The city of Ar-Raqqa in February 2017 had a total of 1,667 satellite-detected damaged or destroyed structures, which when assessed at the end of the conflict in October 2017 saw a major spike with an increase to 12,668 total affected structures within the city.

The population of Ar-Raqqa city dropped from an estimated 229,000 in late 2016 to fewer than 3,000 persons in October 2017. Although clashes within the city did not begin until June 2017, there were significant outflows of people as early as April in anticipation of increased conflict. Following the cessation of fighting in Ar-Raqqa city and complete evacuation of civilians in mid-October 2017, we are now witnessing tens of thousands of IDPs returning to areas of origin with limited access to livelihoods and in severe need of de-mining and repairs to shelters, roads and other infrastructure. The areas with the highest levels of returns are Ma'amoun and Ammar Ibn Yaser (Meshlab), Al-Thawrah (Qaraba) and Tishrine/Baath (Rmelah). These were the first areas that civilians returned to and are located along some of the primary access routes into the city.

Methodology

Using high resolution satellite imagery acquired on 21 October 2017, 03 February 2017, 29 May 2015, 12 February 2014, and 22 October 2013 structural damage was identified. INSO enumerators collected the location and type of 398 major infrastructure points of interest. Using this data REACH was able to assess the likelihood of these points of interest and key-infrastructure being damaged or destroyed. The results are provided for each individual neighbourhood. Findings should be considered as indicative only.

لمحة عامة

يوفر أطلس المدينة معلومات عن شدة الضرر الهيكلي عبر 23 حي في الرقة. وبالشراكة مع UNITAR's (معهد الأمم المتحدة للتدريب والبحث) برنامج تطبيقات الاستشعار - ومنظمة الأمم المتحدة للتربية والعلم والثقافة (UNOSAT)، ومنظمة السلامة الدولية للمنظمات غير الحكومية (INSO)، تمكنت REACH من تحديد البنى الأساسية الرئيسية التي من المحتمل أنها تعرضت للضرر أو التدمير.

من خلال هذا التحليل الشامل حول الموقع المحدد وتصنيف الضرر الهيكلي، يهدف الأطلس إلى أن يكون أداة للحكومات المحلية والمنظمات الإنسانية للتسهيل في تخطيط وتنفيذ الأنشطة الإنسانية في الرقة.

السياق

في الفترة ما بين تشرين الثاني / نوفمبر 2016 وتشرين الأول / أكتوبر 2017، أدت حملة طرد الجماعة المعروفة باسم "الدولة الإسلامية في العراق والشام" (ISIL) من محافظة الرقة إلى تصاعد الصراع في المنطقة. وفي شباط / فبراير 2017 قد بلغ مجموع الأبنية المتضررة أو المدمرة 1,667 مبنى في مدينة الرقة من خلال الكشف عن طريق الأقمار الصناعية، وهو ما شهد عند نهاية النزاع في تشرين الأول / أكتوبر 2017 ارتفاعا كبيرا في زيادة عدد الأبنية المتضررة والمدمرة داخل المدينة إلى 12,668 مبنى.

انخفض عدد سكان مدينة الرقة من ما يقارب 229,000 نسمة في اواخر عام 2016 الى اقل من 3,000 نسمة في اكتوبر 2017. وعلى الرغم من أن الاشتباكات داخل المدينة لم تبدأ حتى حزيران / يونيو 2017، كانت هناك تدفقات كبيرة من الناس في أوائل نيسان / أبريل تحسبا لزيادة الصراعات. وعقب وقف القتال في مدينة الرقة والإجلاء الكامل للمدنيين في منتصف تشرين الأول / أكتوبر 2017، نشهد الآن عشرات الآلاف من النازحين داخلها العائدين إلى مناطق المنشأ (الأصل) مع محدودة فرص الحصول على سبل كسب العيش وفي حاجة ماسة إلى إزالة الألغام والقيام بإصلاحات الملاجئ والطرق وغيرها من البنى التحتية. أما المناطق ذات أعلى مستويات عائدين فهي حي مأمون وحي عمار بن ياسر (مشلاب) وحي الثورة (قربة) وحي تشرين/بعث (رميله). كانت هذه هي المناطق الأولى التي يعود إليها المدنيون ويتواجدون على طول بعض طرق الوصول الرئيسية إلى المدينة.

المنهجية

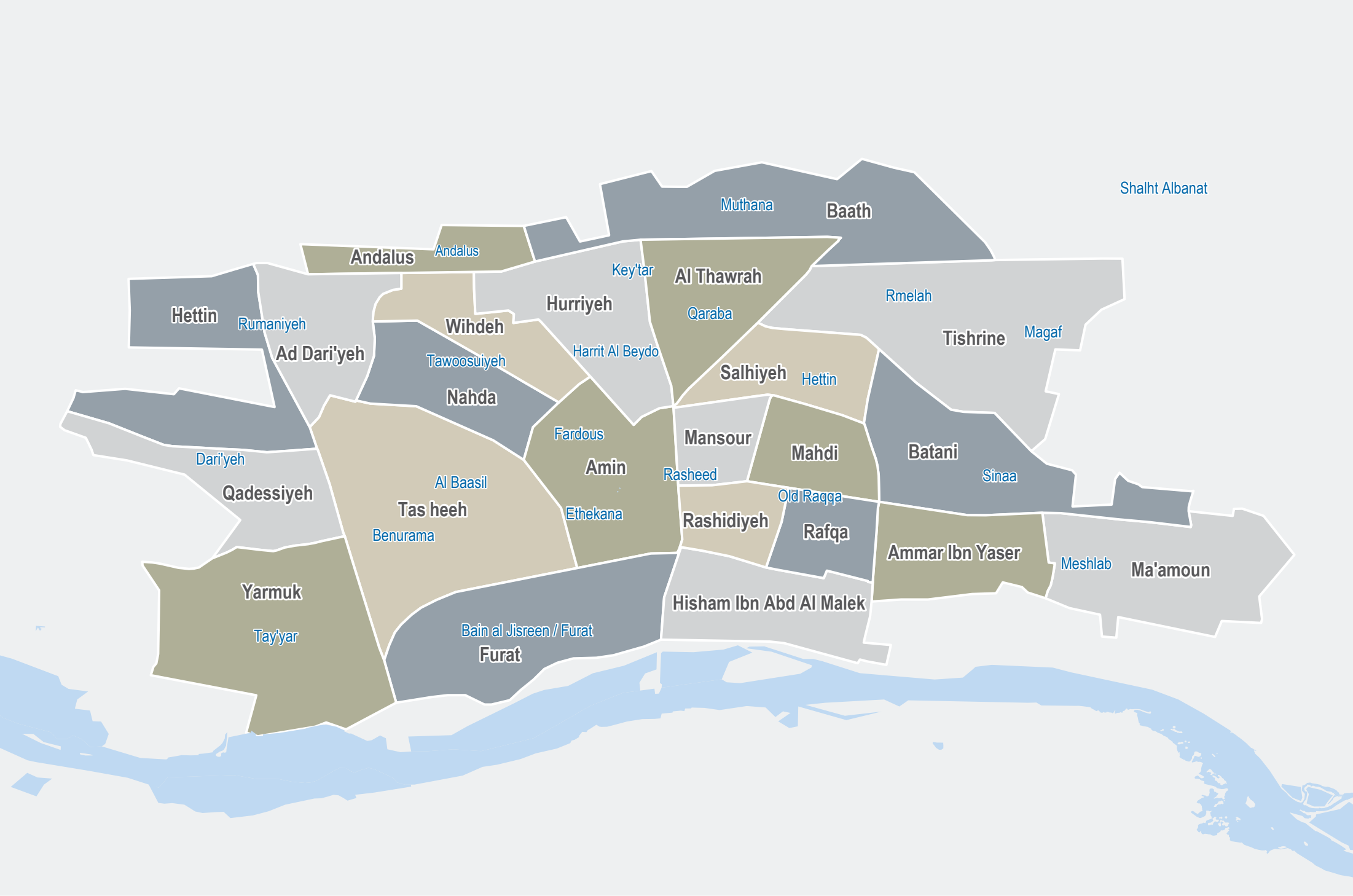
باستخدام صور فضائية عالية الدقة تم الحصول عليها في 21 تشرين الأول / أكتوبر 2017 و 03 شباط / فبراير 2017 و 29 أيار / مايو 2015 و 12 شباط / فبراير 2014 و 22 تشرين الأول / أكتوبر 2013، تم تحديد الأضرار الهيكلية. وقد جمع باحثي منظمة السلامة الدولية للمنظمات غير الحكومية INSO موقع ونوع 398 نقاط اهتمام رئيسية للبنى التحتية. باستخدام هذه البيانات تمكنت REACH من تقييم احتمالية هذه النقاط المثيرة للاهتمام والبنية التحتية الرئيسية التي تضررت أو دمرت وتقدم النتائج لكل حي على حدة. وينبغي أن تعتبر النتائج إرشادية فقط.



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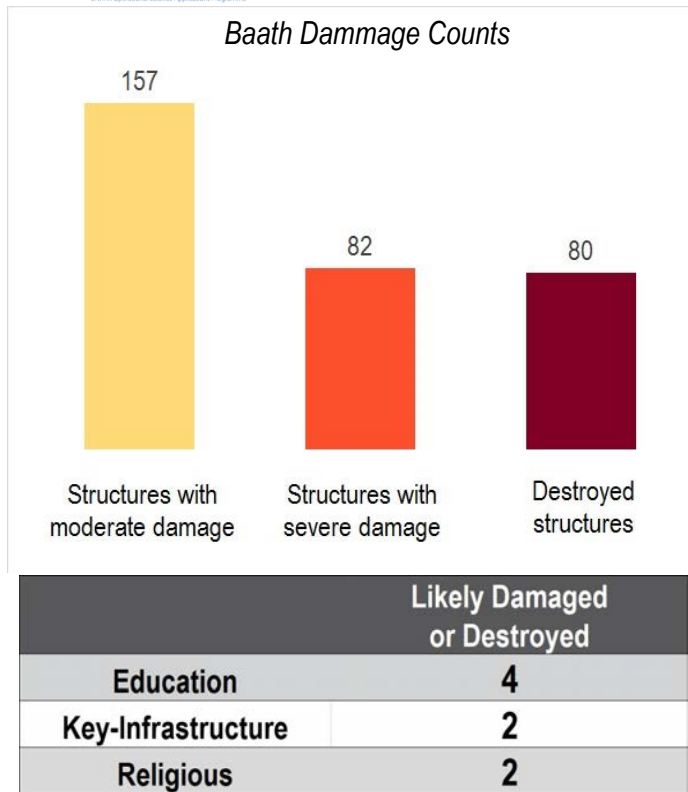
Ar-Raqqa City - Neighbourhood Reference Map



Source: Administrative Neighbourhood Boundaries - Syria COD, Humanitarian Data Exchange
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by REACH or the United Nations.

Baath Neighbourhood (Andalus / Muthana)

Satellite-Detected Severity of Structure Damage - 21 October 2017



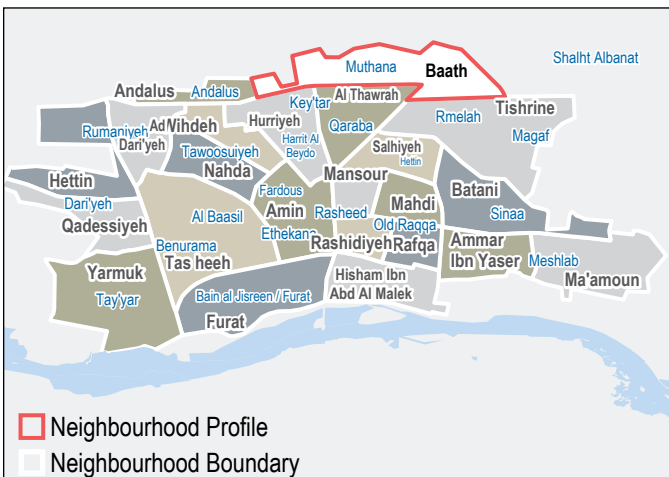
* Key-Infrastructure includes bakeries and bridges



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



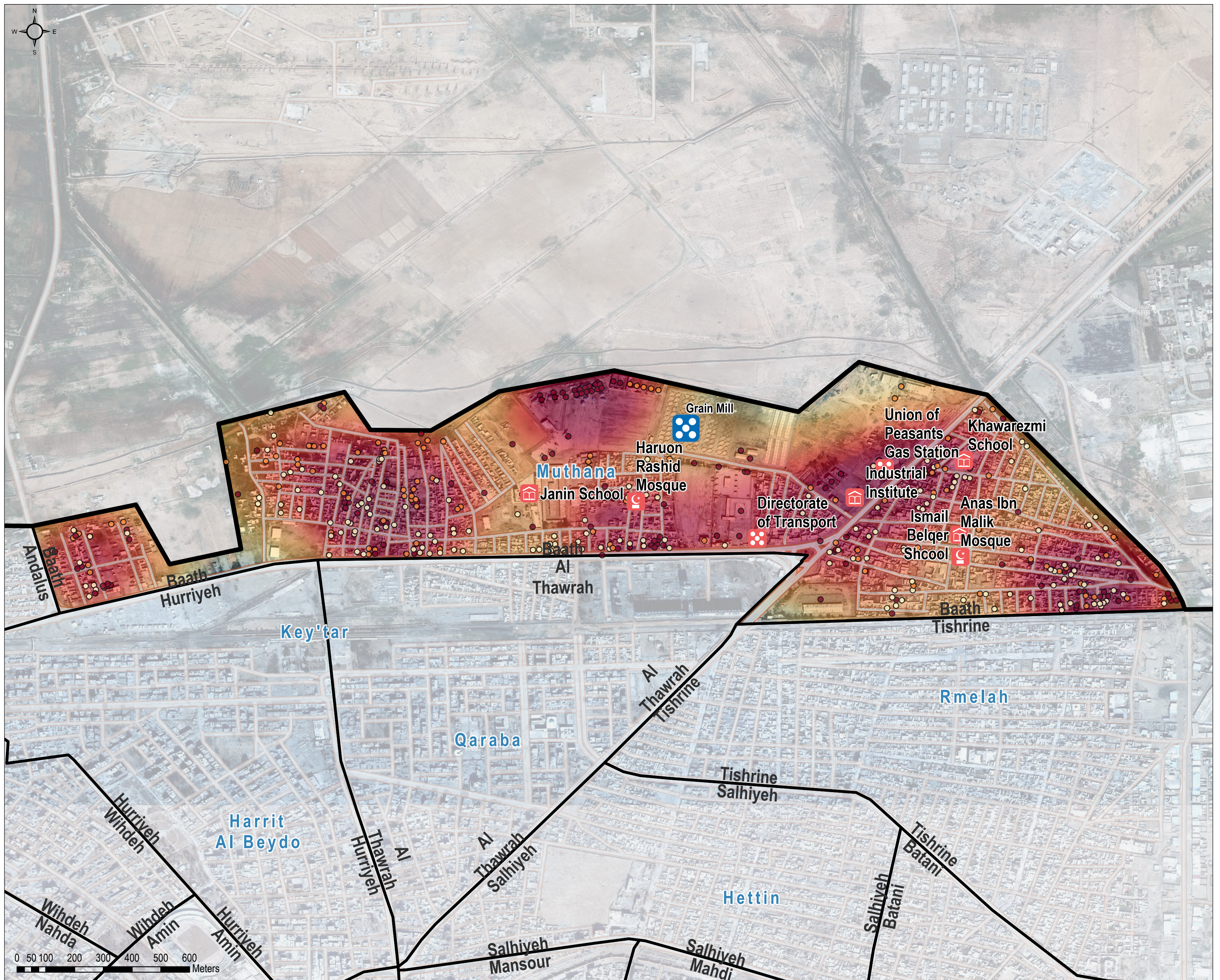
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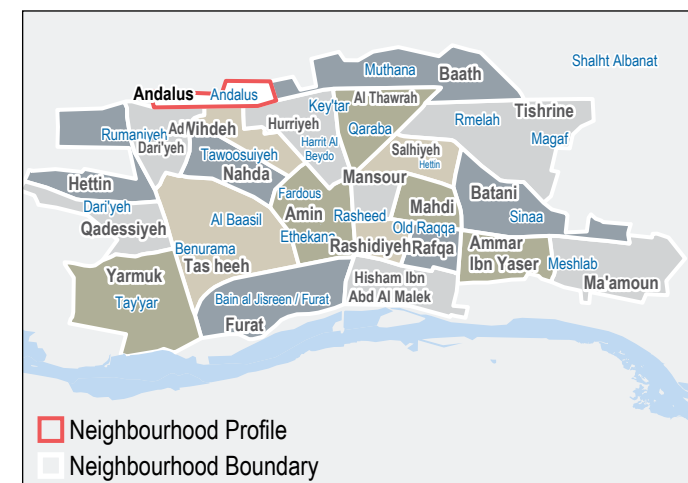
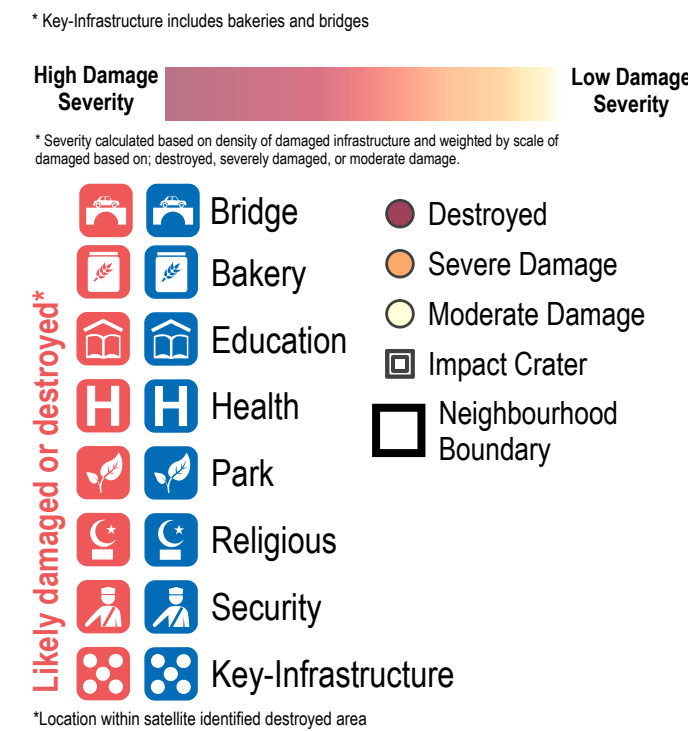
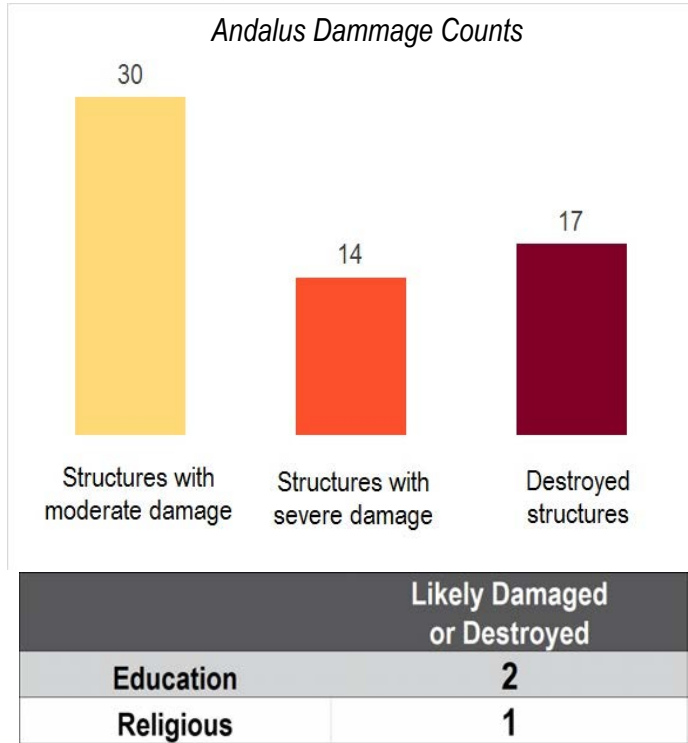


Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

Data sources:
Infrastructure Classification - International NGO Safety Organisation (INSO)
Satellite Imagery: WorldView-3 from 21 October 2017
Source: US Department of State, Humanitarian Information Unit, NextView License
Road Data: OpenStreetMap
Admin Data: UN OCHA
Analysis: UNITAR-UNOSAT
Production: REACH Initiatives

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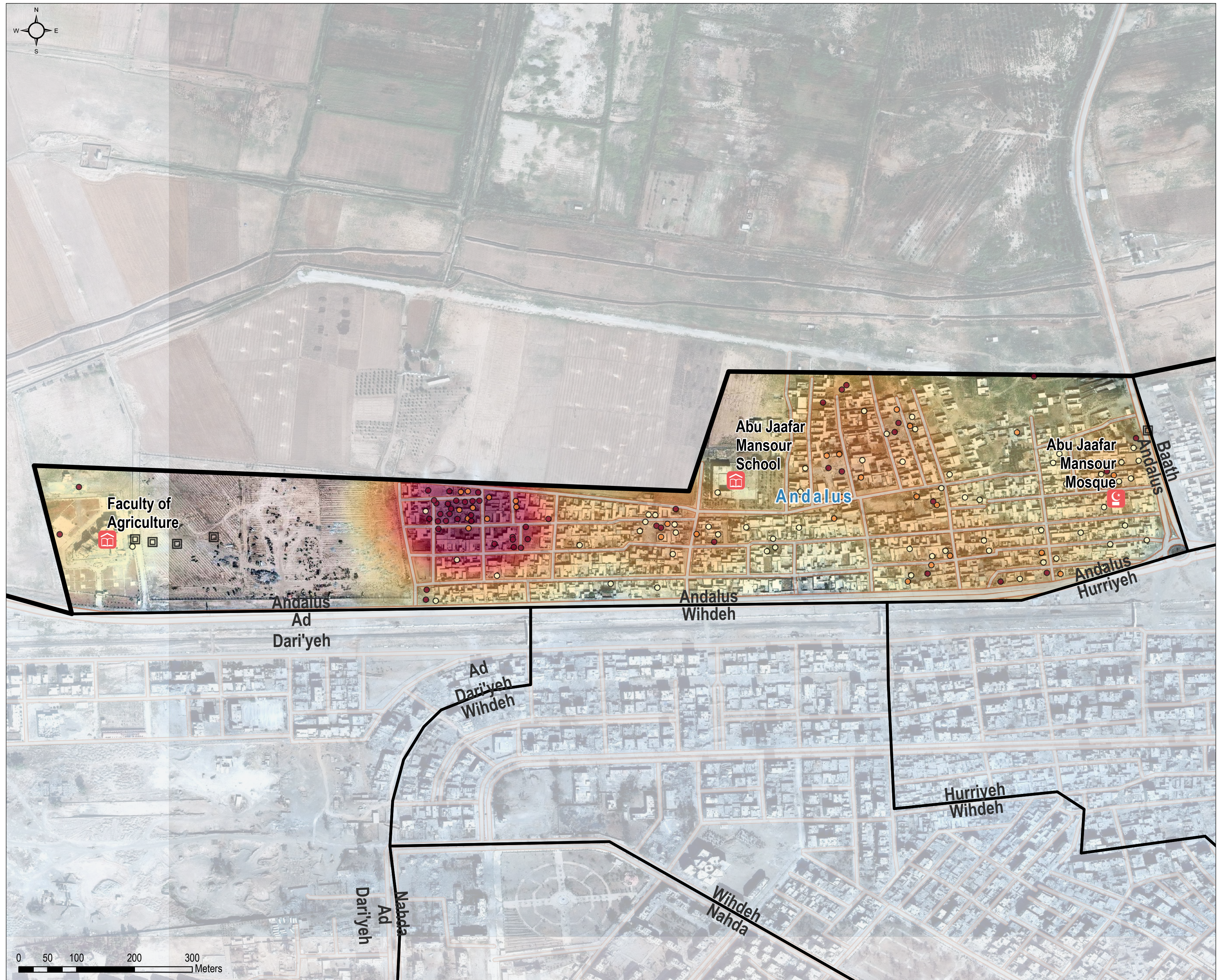




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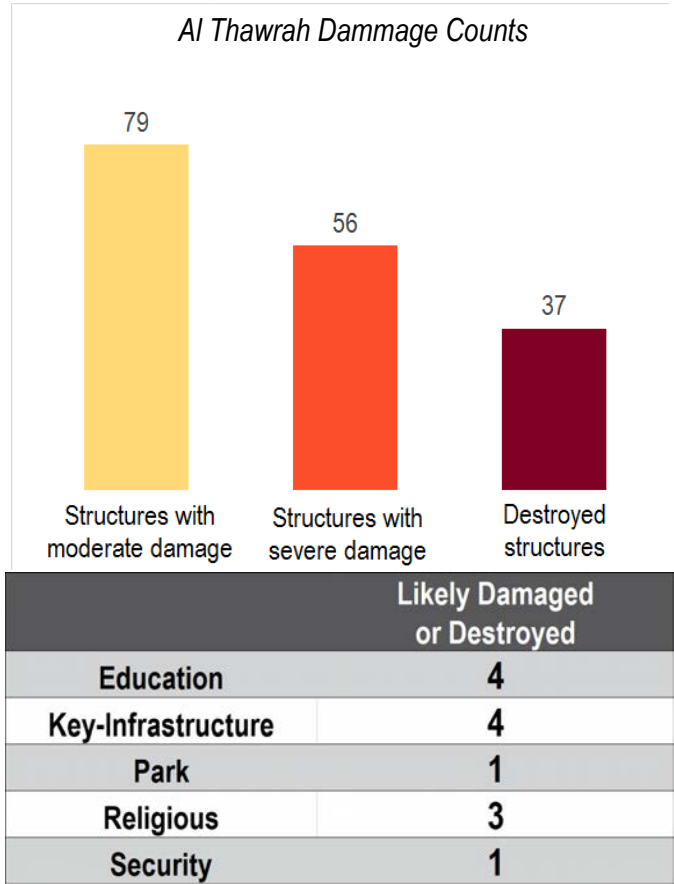
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Al Thawrah Neighbourhood (Qaraba / Key'tar)

Satellite-Detected Severity of Structure Damage - 21 October 2017



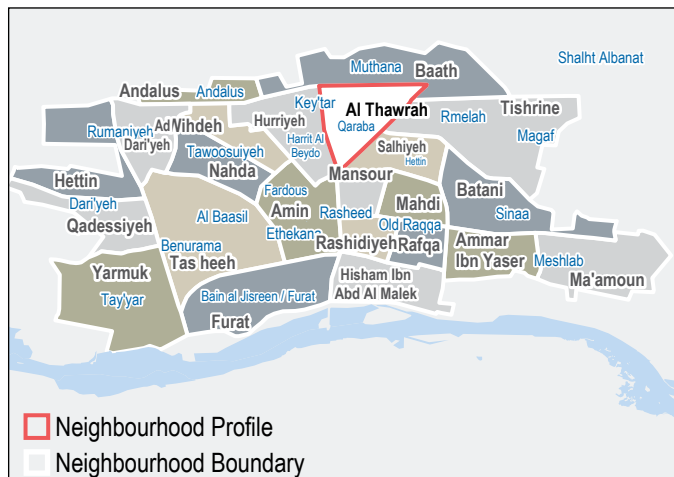
* Key-Infrastructure includes bakeries and bridges



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



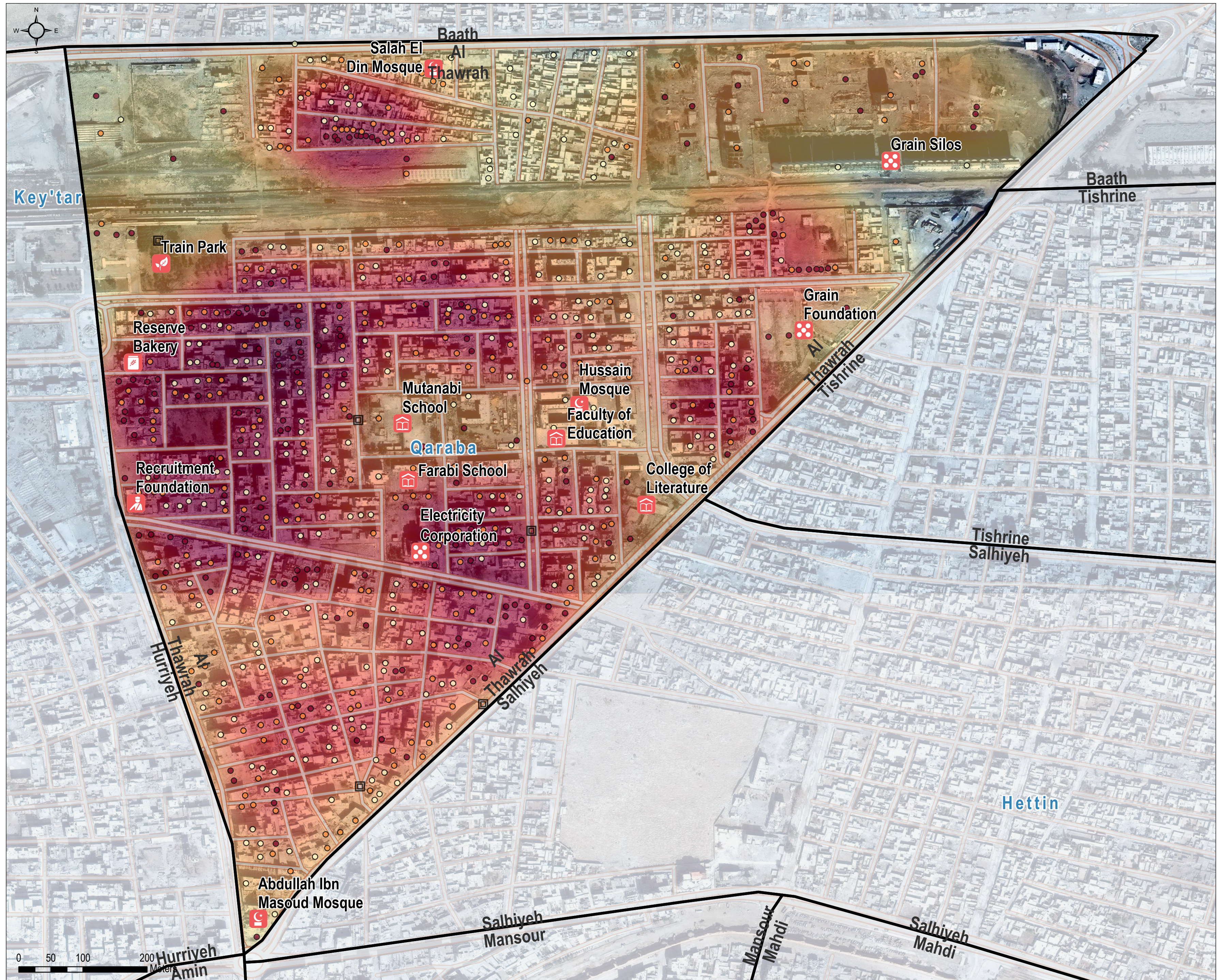
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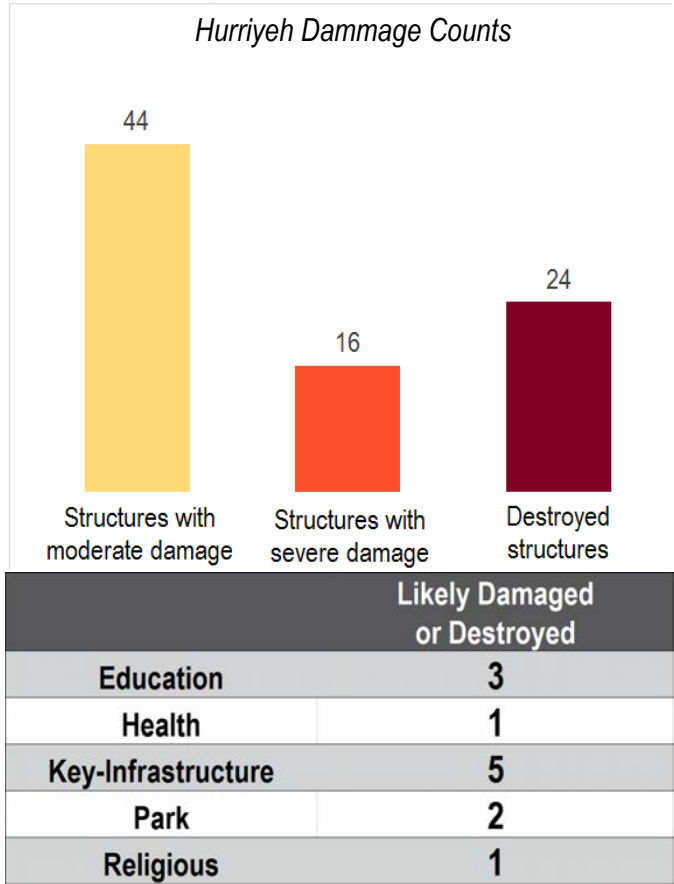
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Hurriyeh Neighbourhood (Harrit Al Beydo / Key'tar)

Satellite-Detected Severity of Structure Damage - 21 October 2017



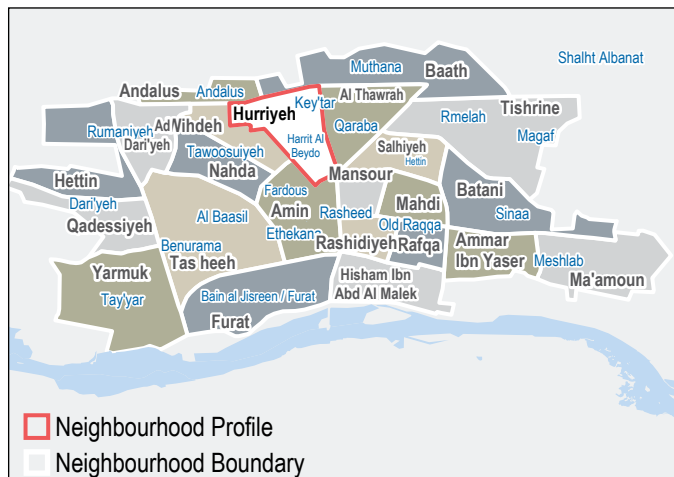
* Key-Infrastructure includes bakeries and bridges



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



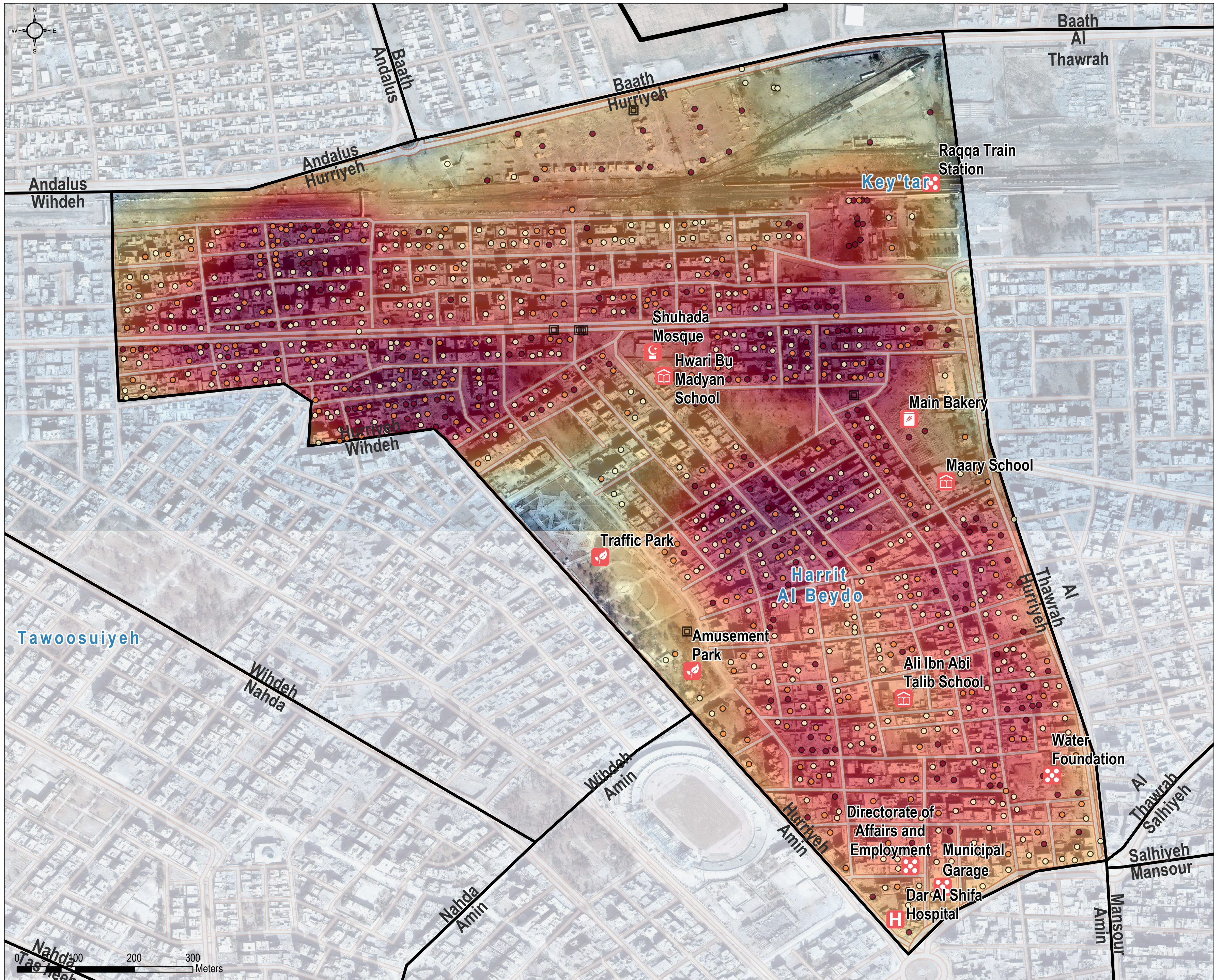
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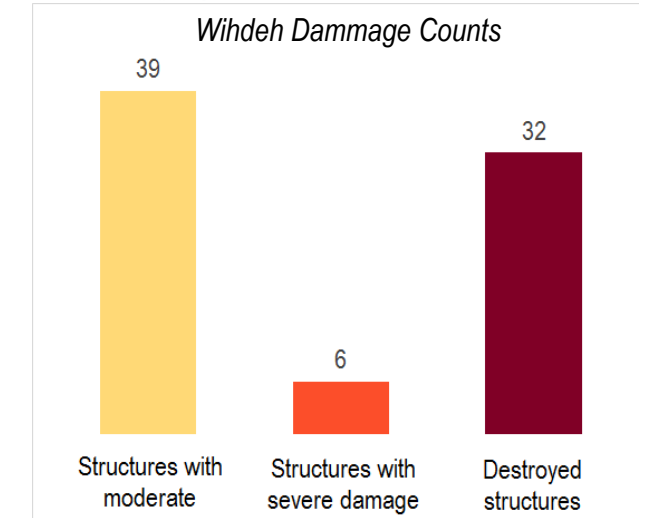
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Wihdeh Neighbourhood (Tawoosuiyeh)

Satellite-Detected Severity of Structure Damage - 21 October 2017

For Humanitarian Use Only
Production date : 15 February 2018



Likely Damaged or Destroyed	
Education	3
Key-Infrastructure	3
Park	2
Religious	2

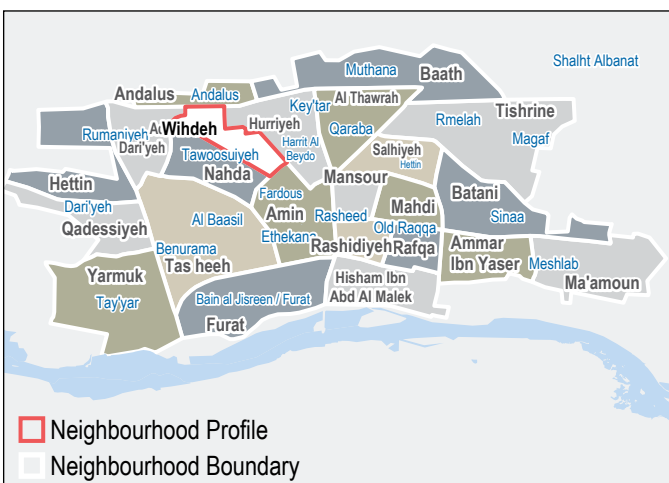
* Key-Infrastructure includes bakeries and bridges



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



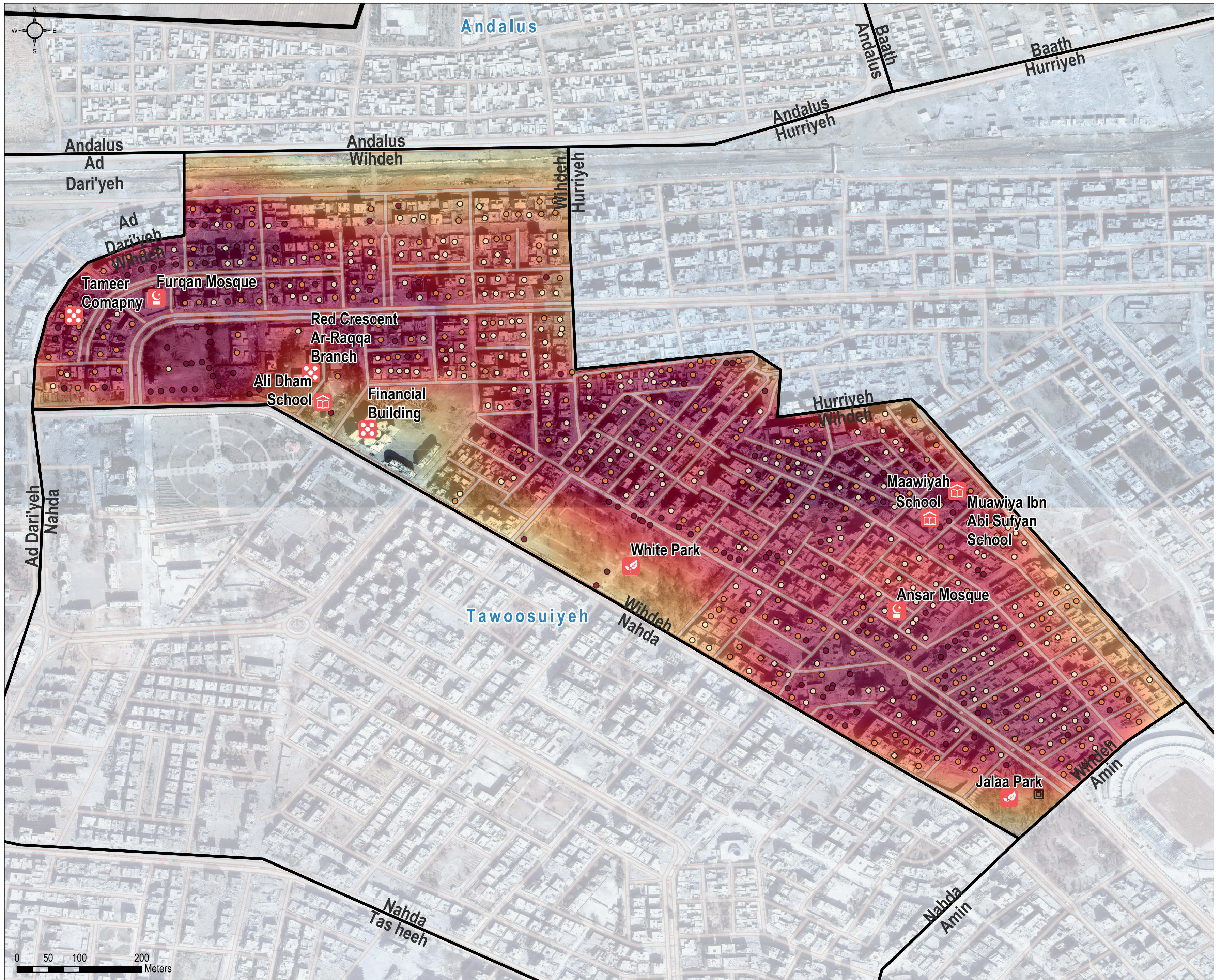
*Location within satellite identified destroyed area



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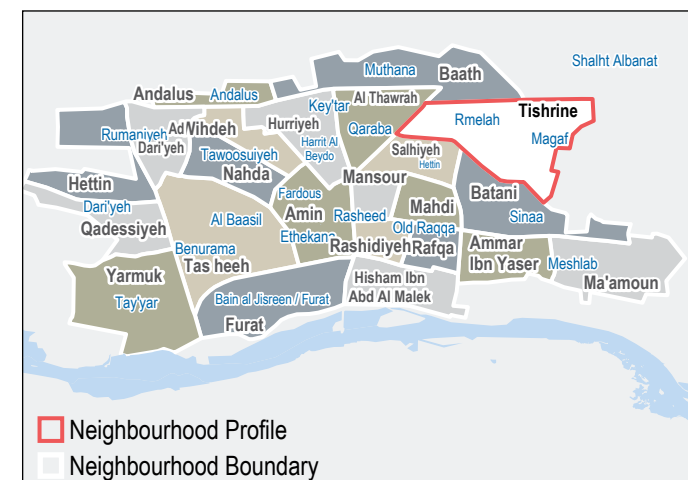
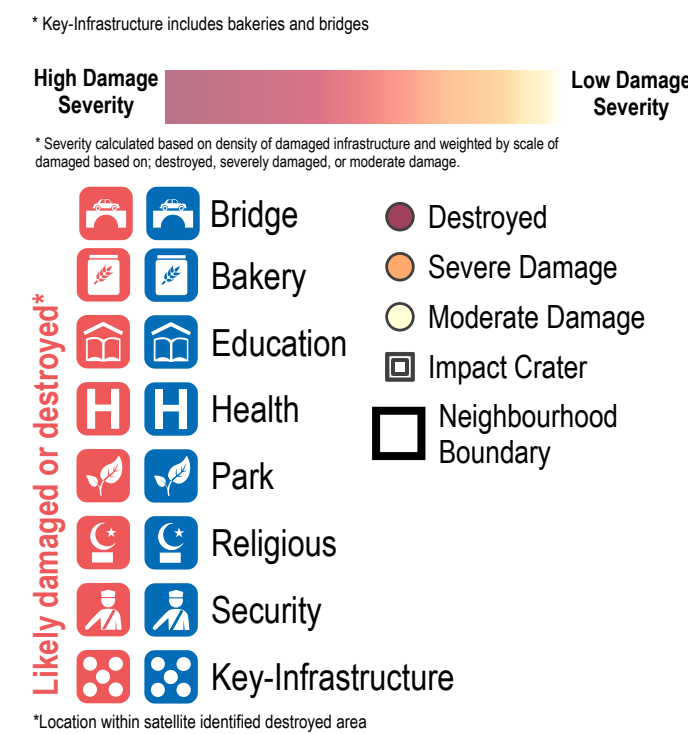
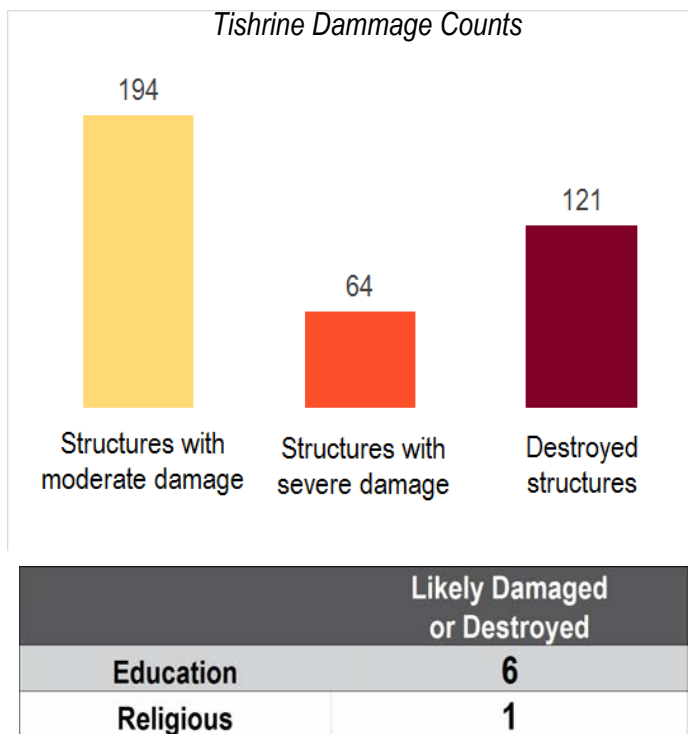
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Tishrine Neighbourhood (Magaf)

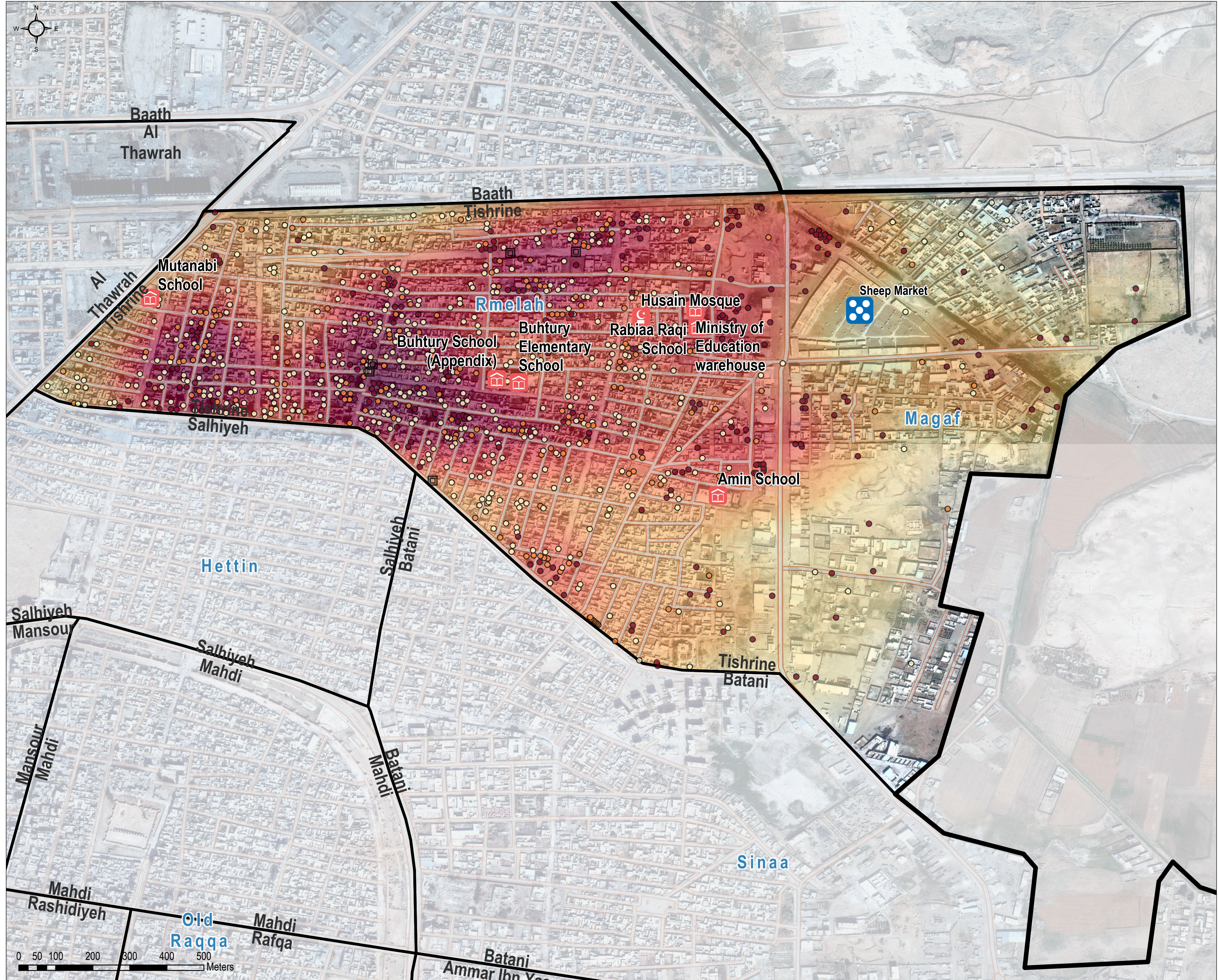
Satellite-Detected Severity of Structure Damage - 21 October 2017



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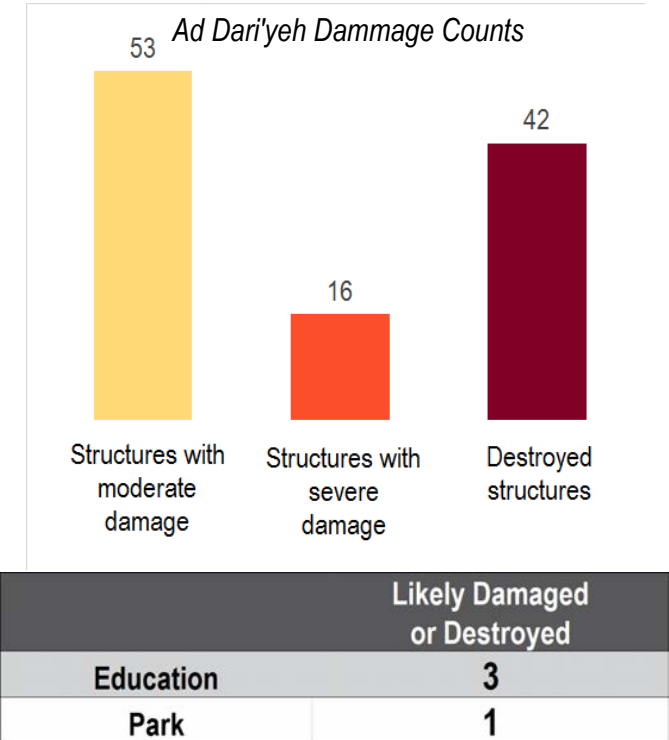
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Ad Dari'yeh Neighbourhood (Rumaniyeh)

Satellite-Detected Severity of Structure Damage - 21 October 2017



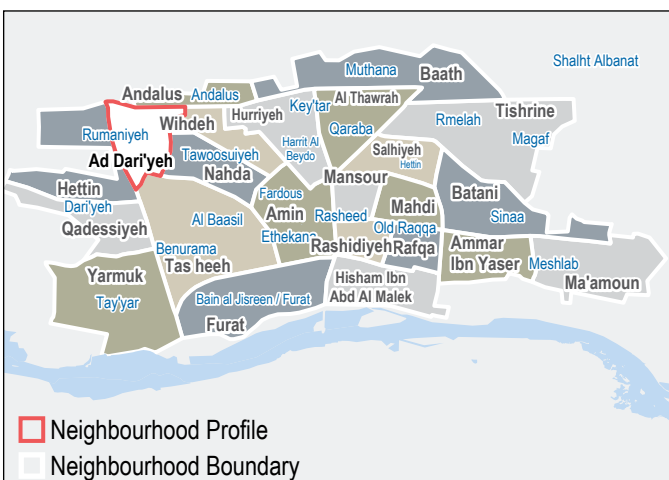
* Key-Infrastructure includes bakeries and bridges



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



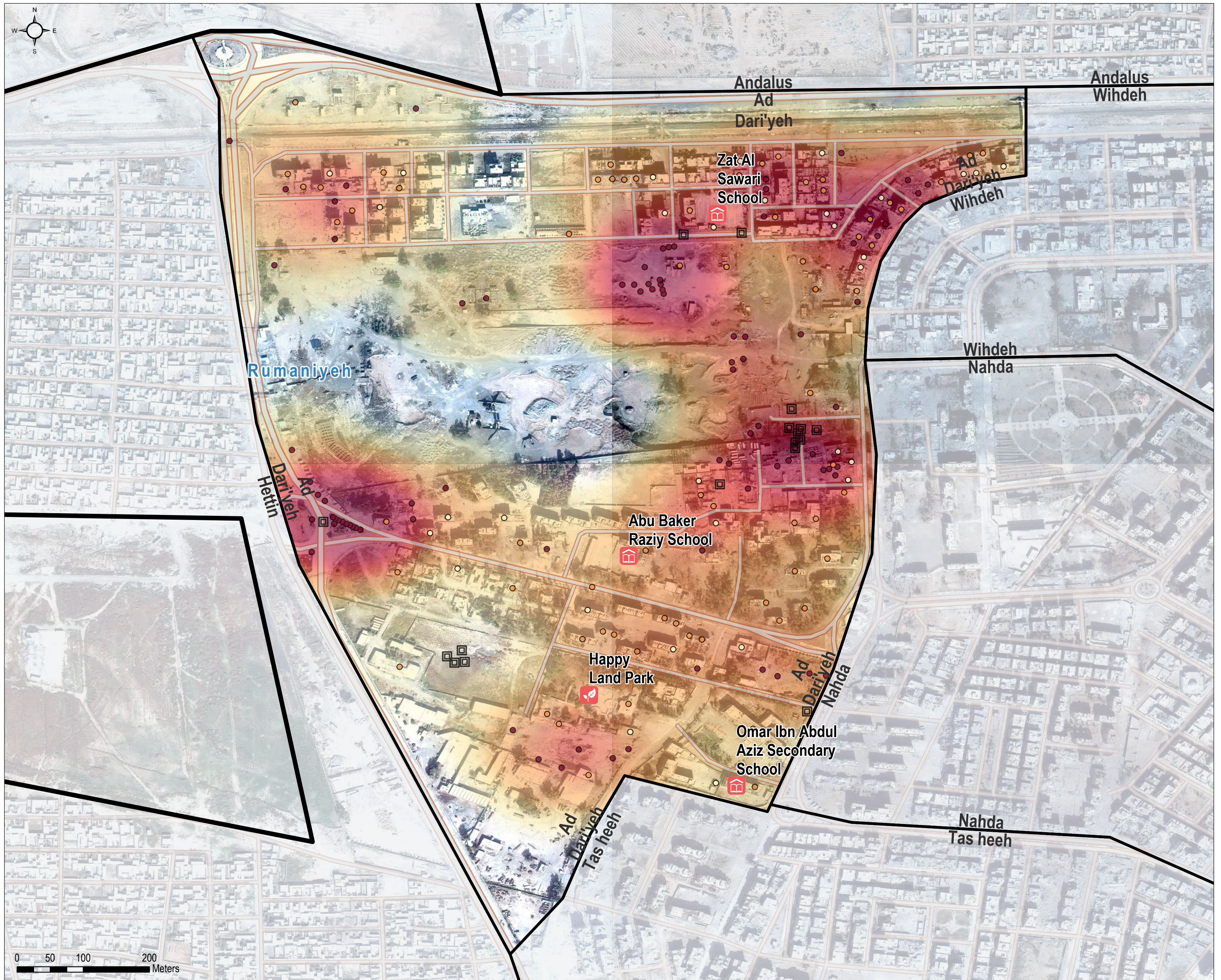
*Location within satellite identified destroyed area



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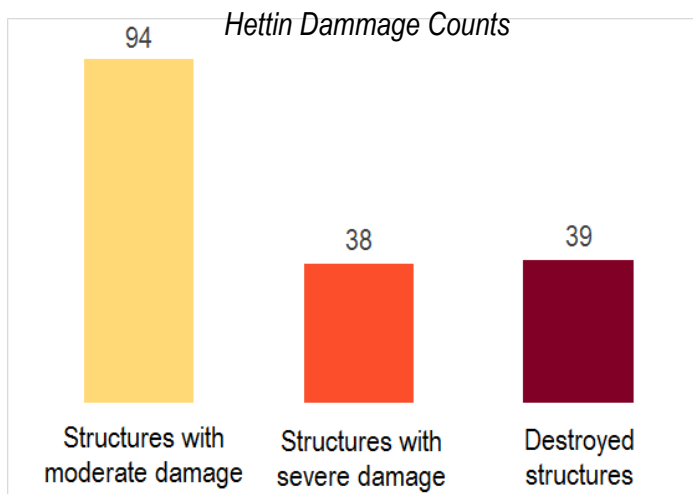
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Hettin Neighbourhood (Rumaniyeh / Dari'yeh)

Satellite-Detected Severity of Structure Damage - 21 October 2017



Likely Damaged or Destroyed	
Key-Infrastructure	2
Religious	1
Security	1

* Key-Infrastructure includes bakeries and bridges

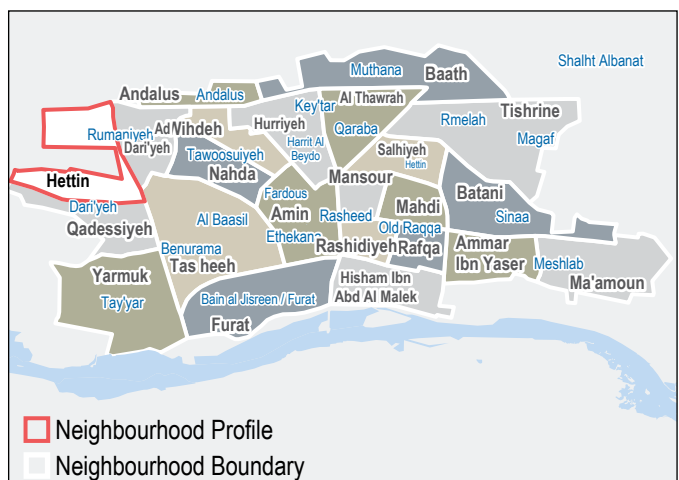


* Severity calculated based on density of damaged infrastructure and weighted by scale of damaged based on: destroyed, severely damaged, or moderate damage.

- Likely damaged or destroyed*

 - Bridge
 - Bakery
 - Education
 - Health
 - Park
 - Religious
 - Security
 - Key-Infrastructure
- Destroyed
 - Severe Damage
 - Moderate Damage
 - Impact Crater
 - Neighbourhood Boundary

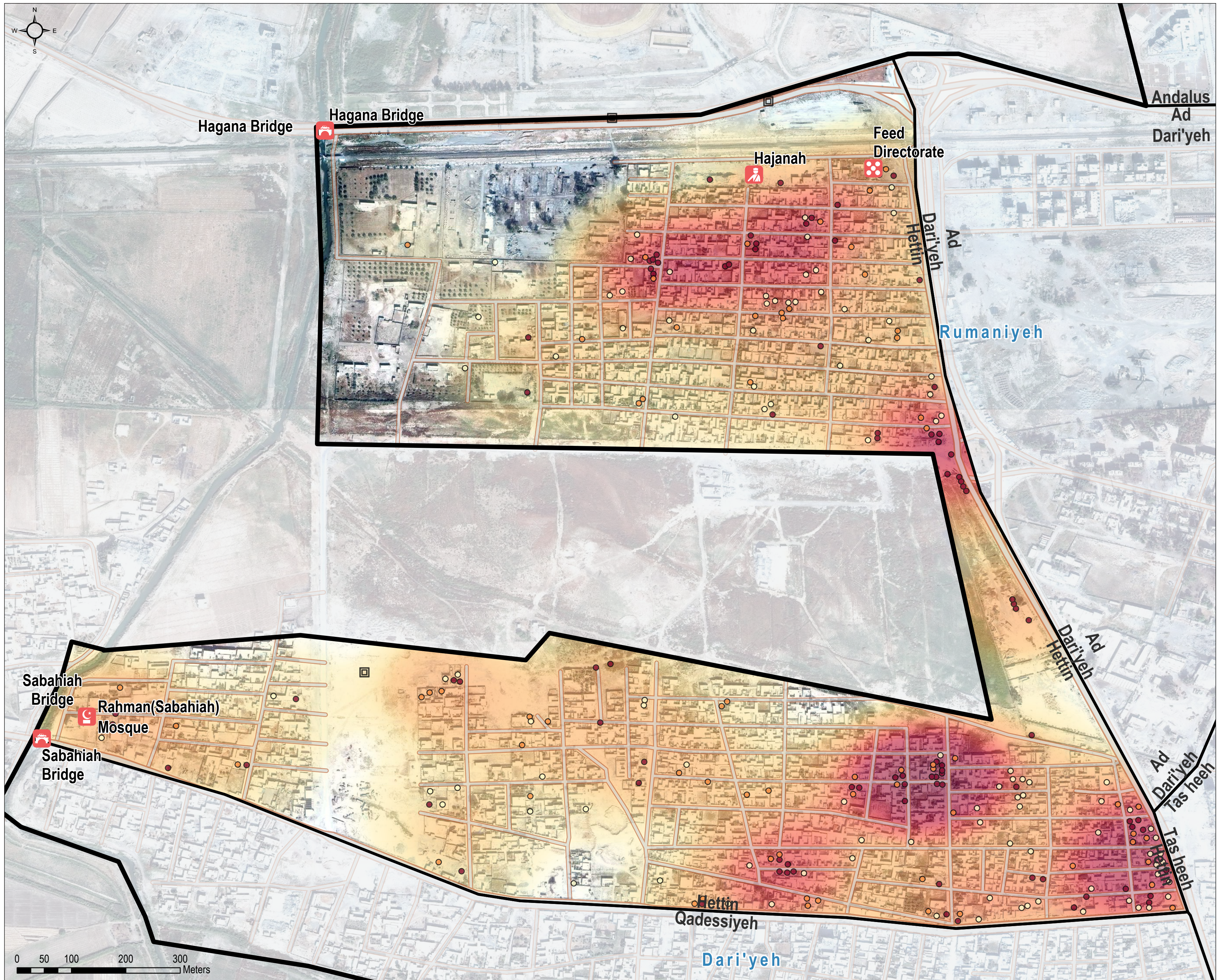
*Location within satellite identified destroyed area

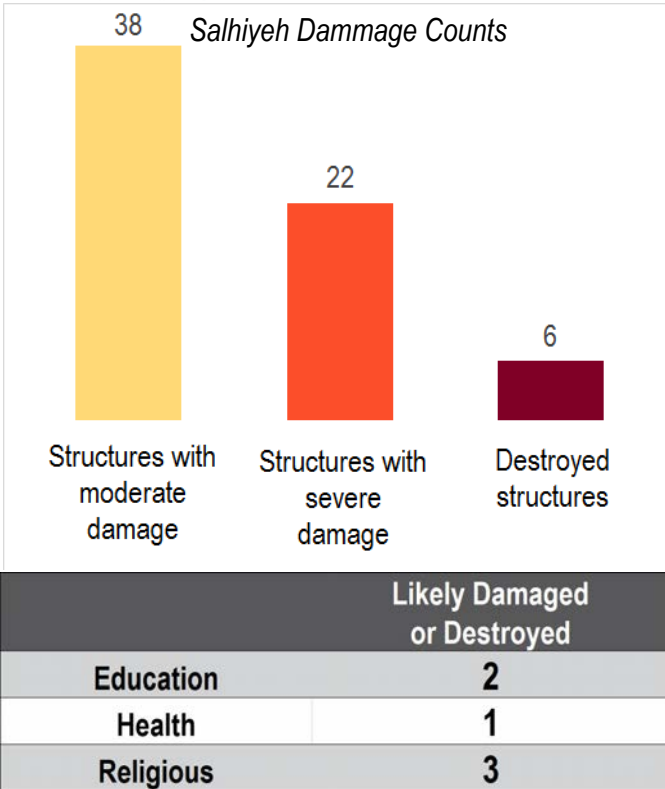


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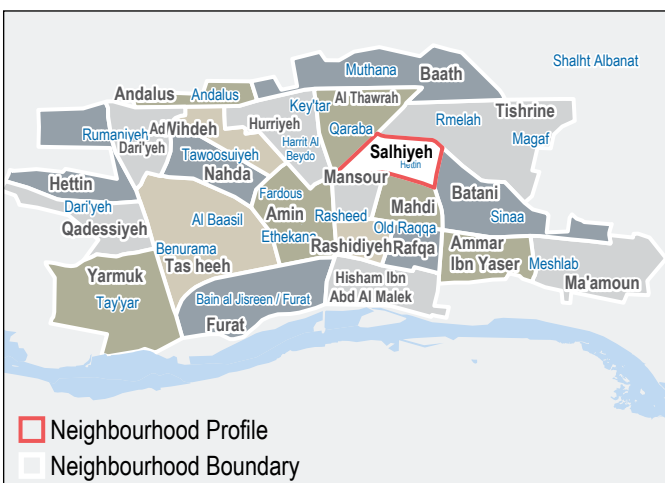




* Key-Infrastructure includes bakeries and bridges



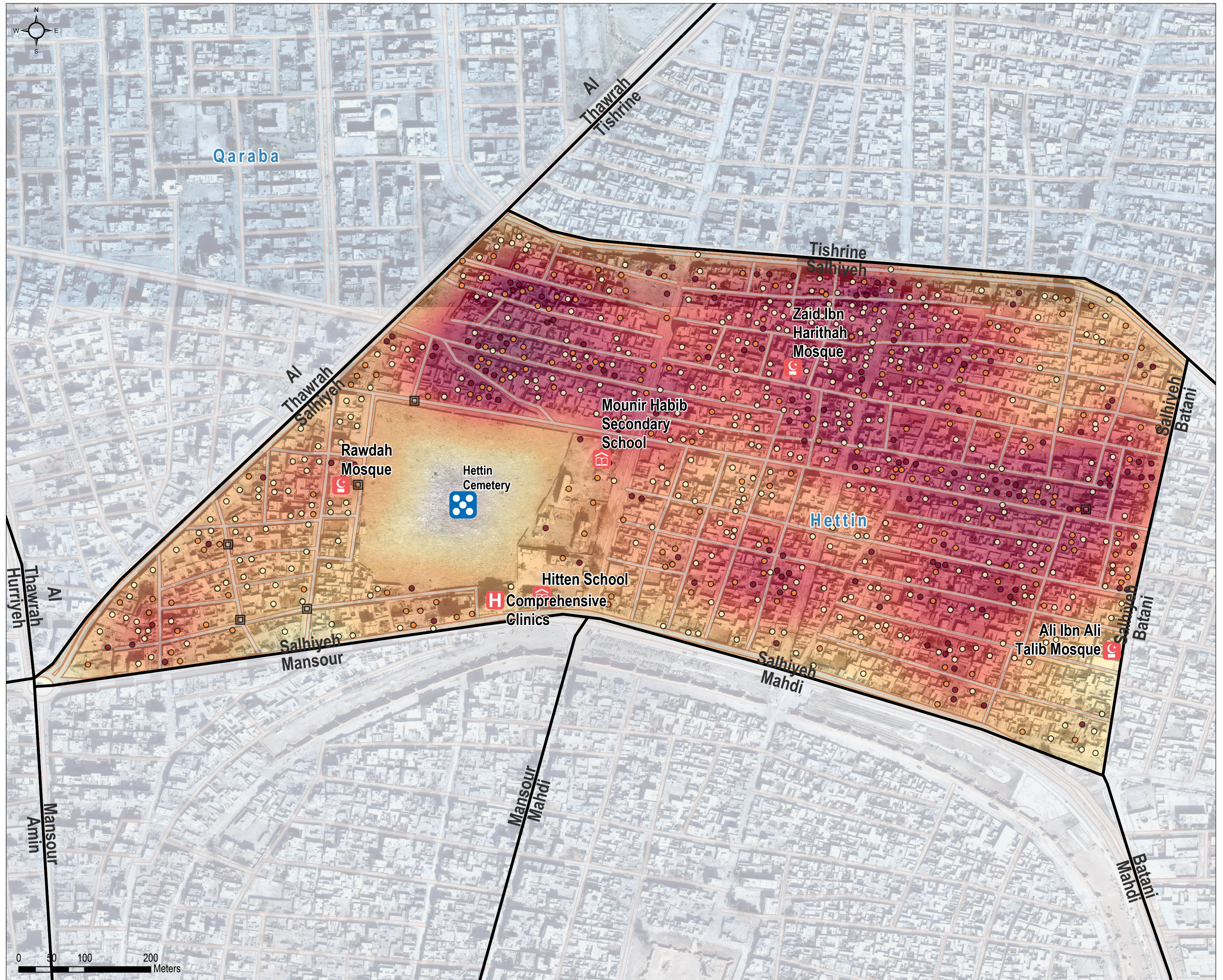
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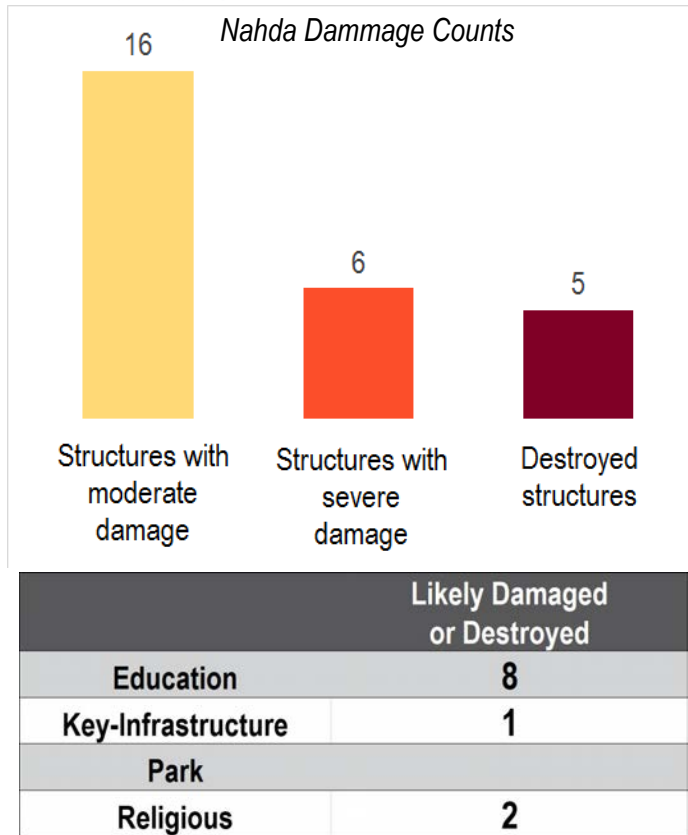
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Nahda Neighbourhood (Tawoosuiyeh)

Satellite-Detected Severity of Structure Damage - 21 October 2017



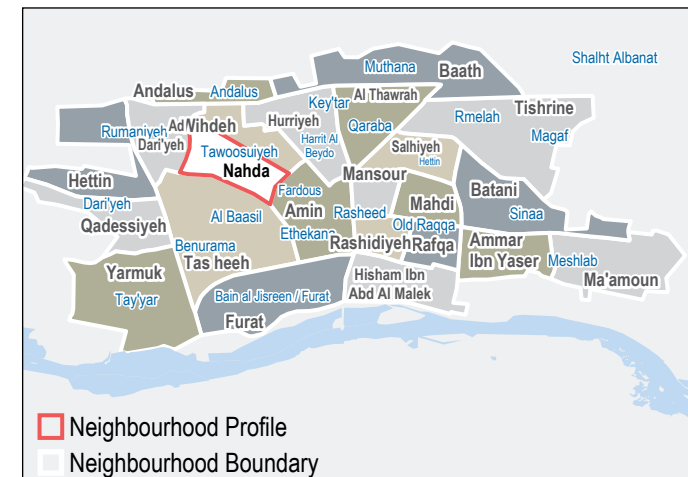
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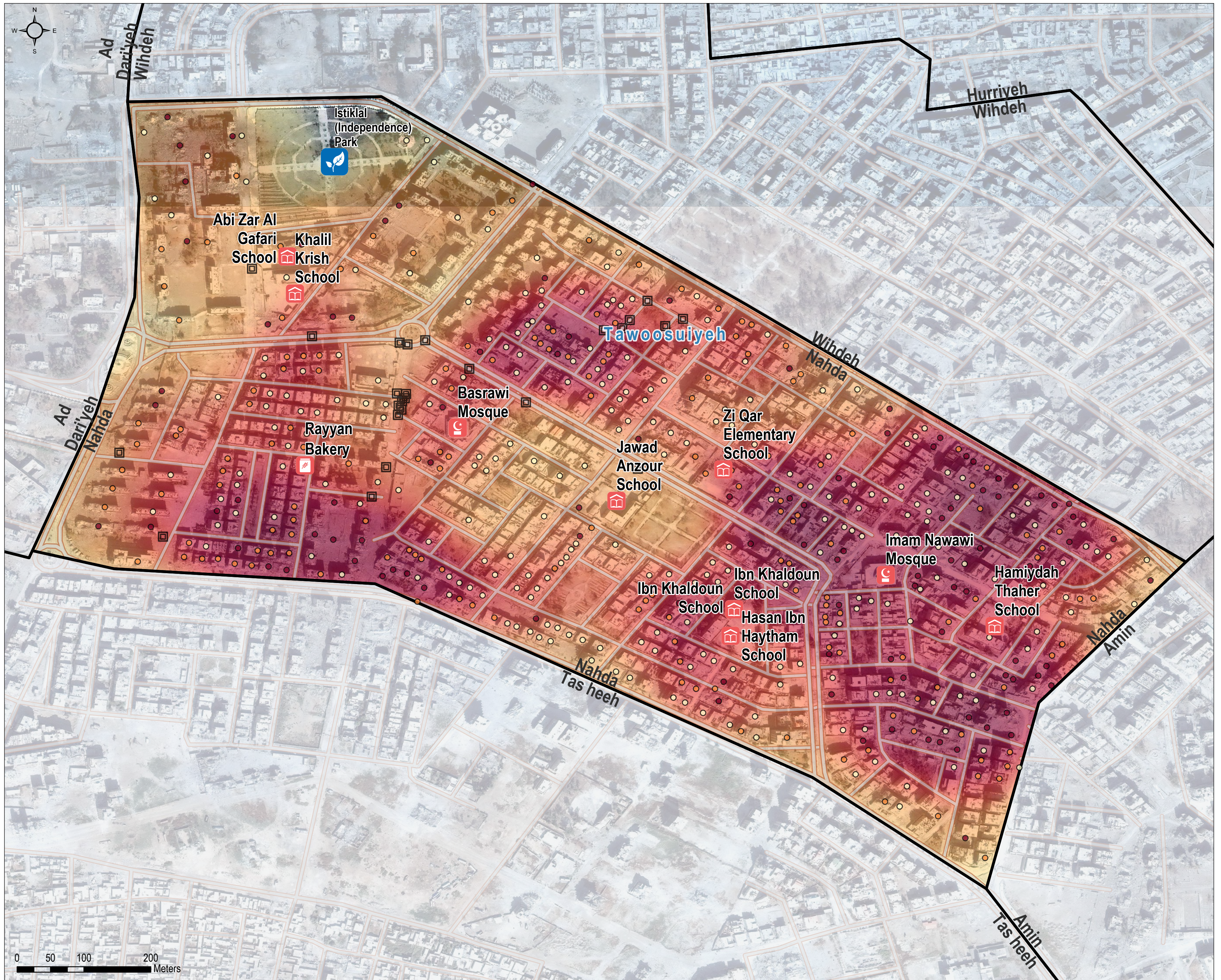
*Location within satellite identified destroyed area

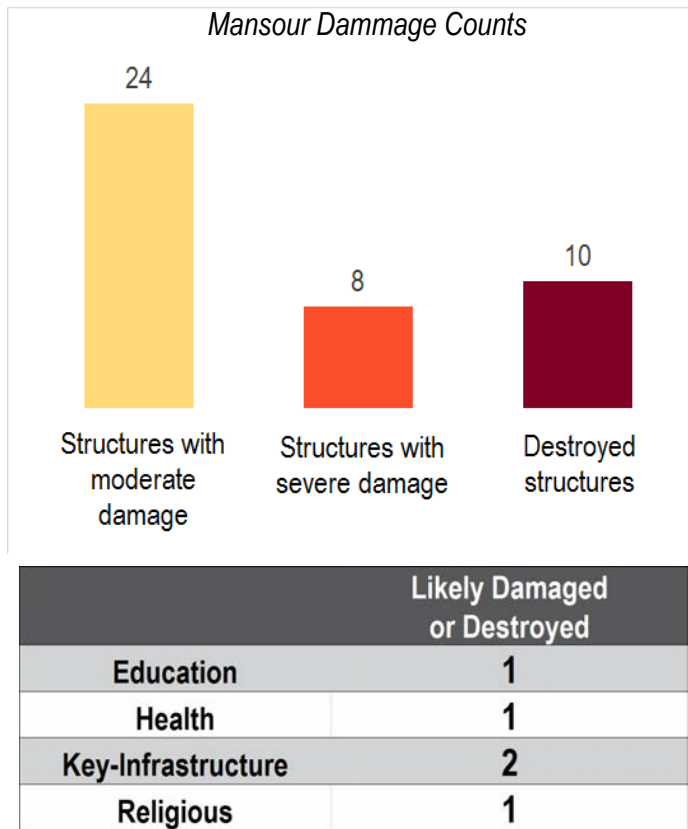


Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

Data sources:
Infrastructure Classification - International NGO Safety Organisation (INSO)
Satellite Imagery: WorldView-3 from 21 October 2017
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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

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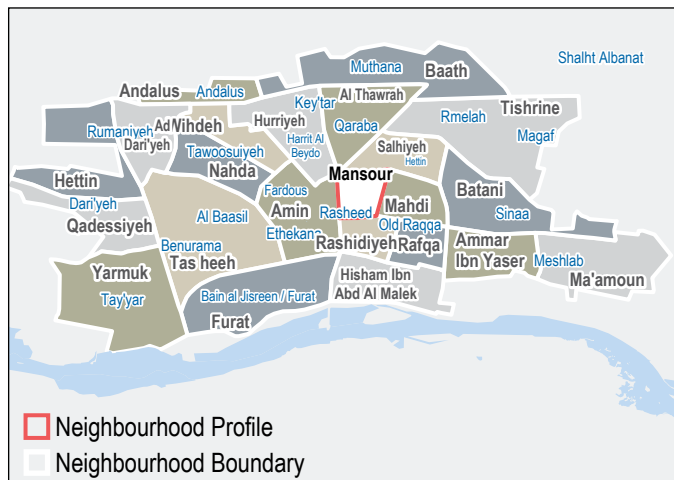
* Key-Infrastructure includes bakeries and bridges



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



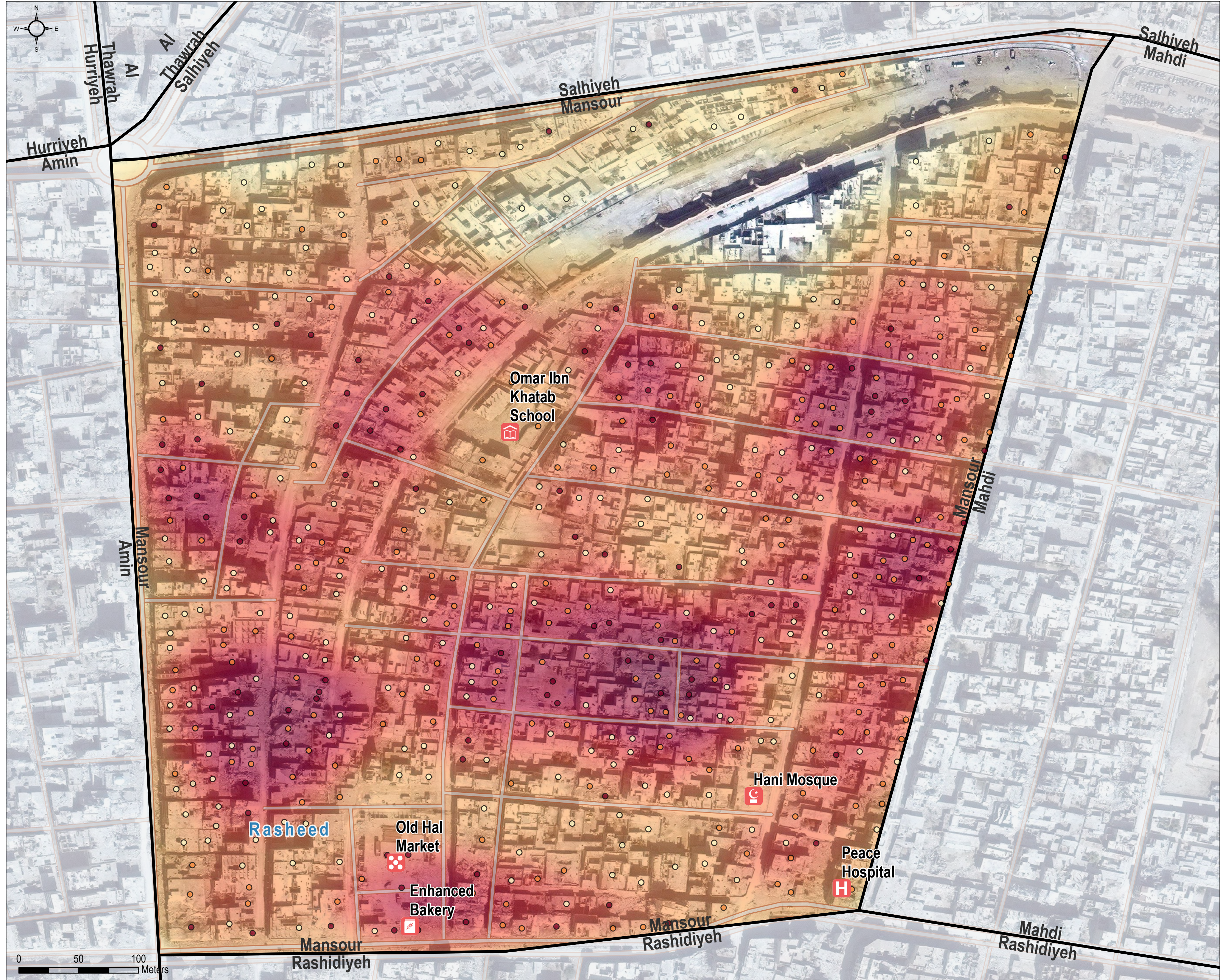
*Location within satellite identified destroyed area



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

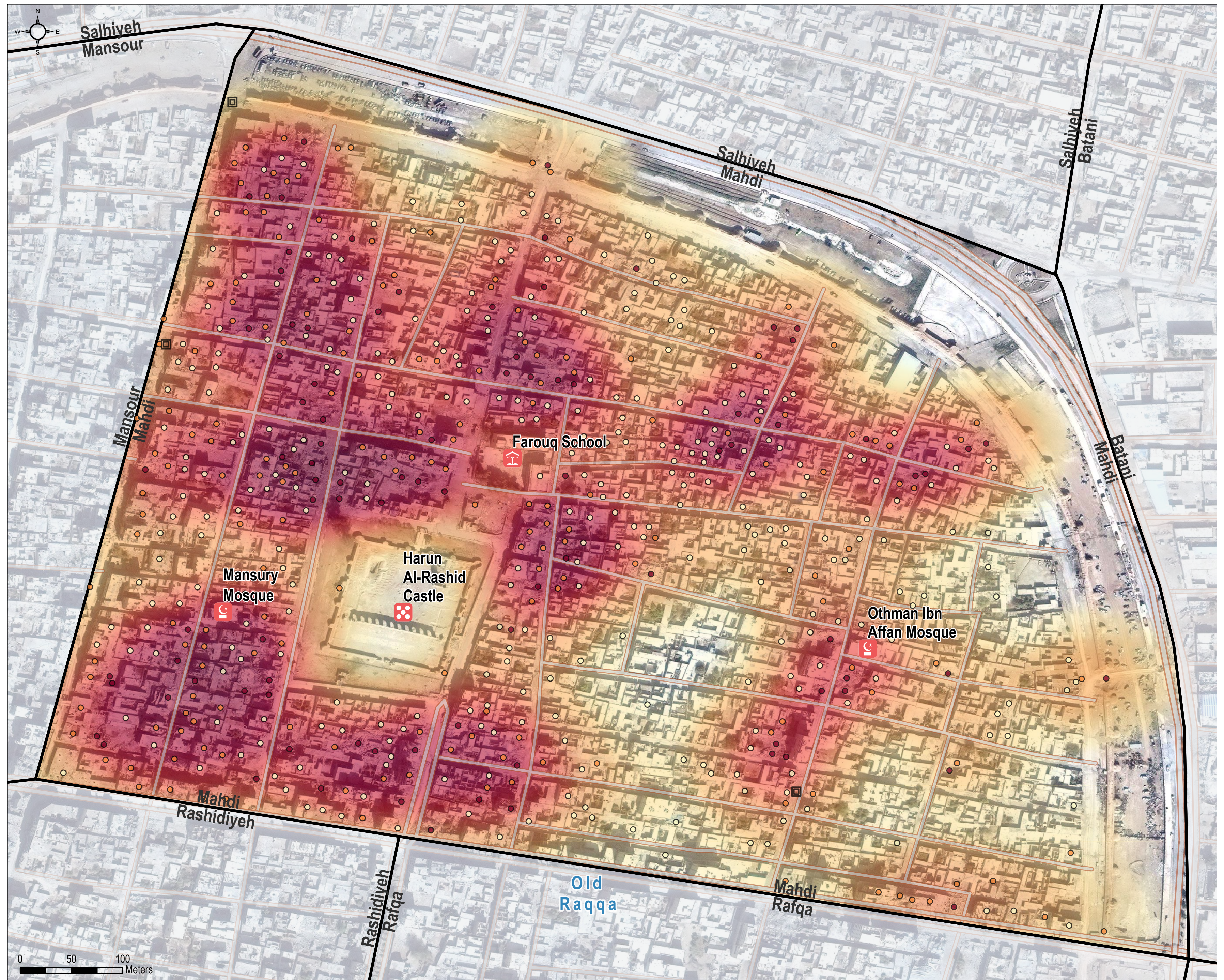
Analysis Conducted comparing:
Satellite Data (1): WorldView-3 from 21 October 2017
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Satellite Data (2): WorldView-2 from 03 February 2017, 12 February 2014
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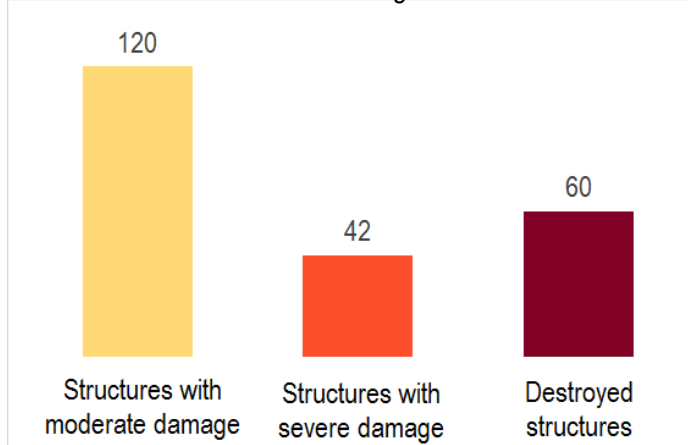
0 50 100 Meters



Source: US Department of State, Humanitarian Information
NextView License



Batani Damage Counts



Likely Damaged or Destroyed	
Education	1
Health	1
Key-Infrastructure	2
Religious	1

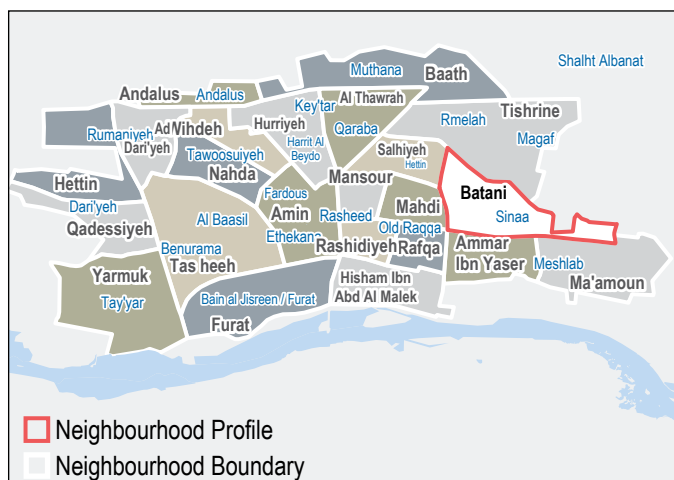
* Key-Infrastructure includes bakeries and bridges

High Damage Severity Low Damage Severity

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



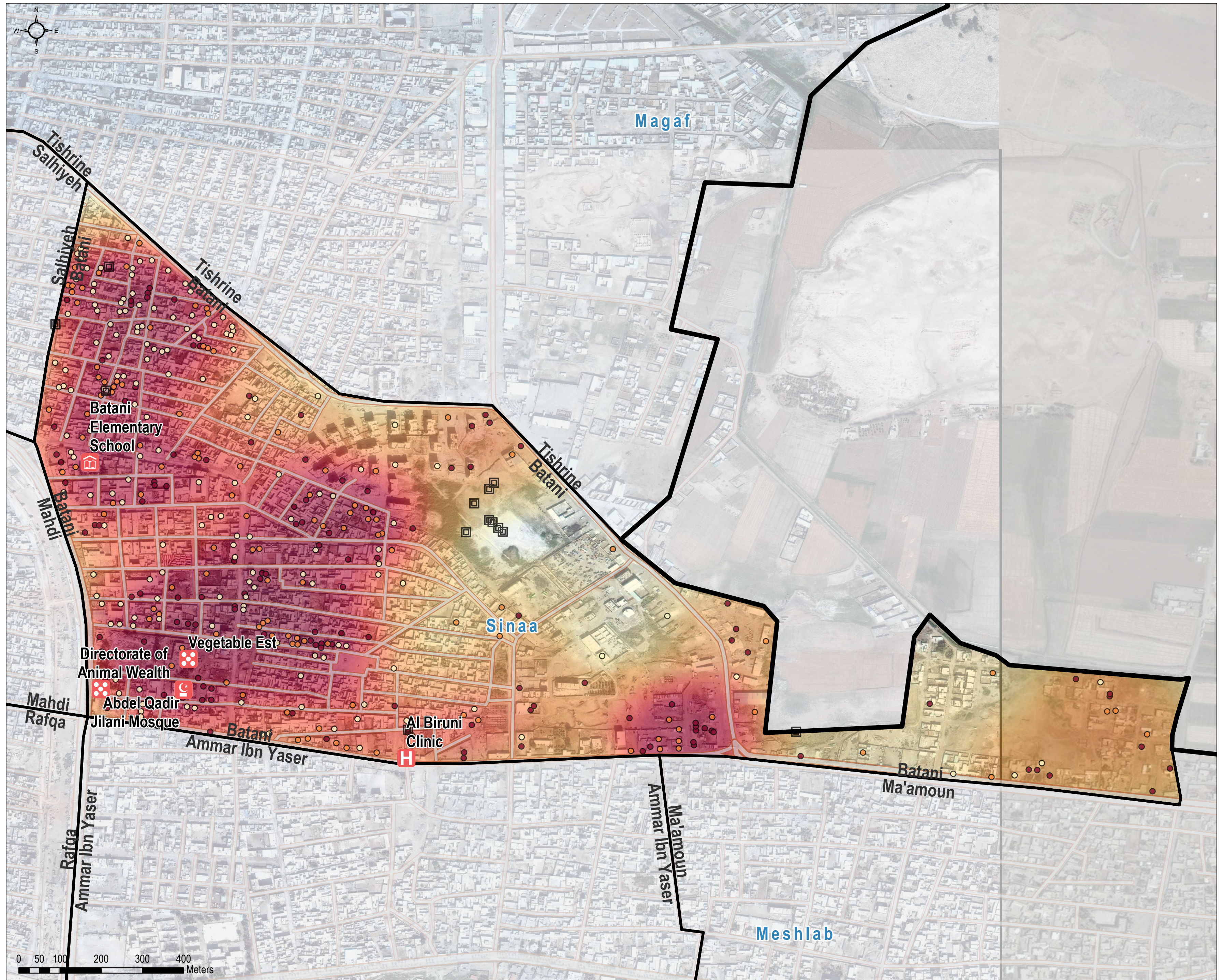
*Location within satellite identified destroyed area

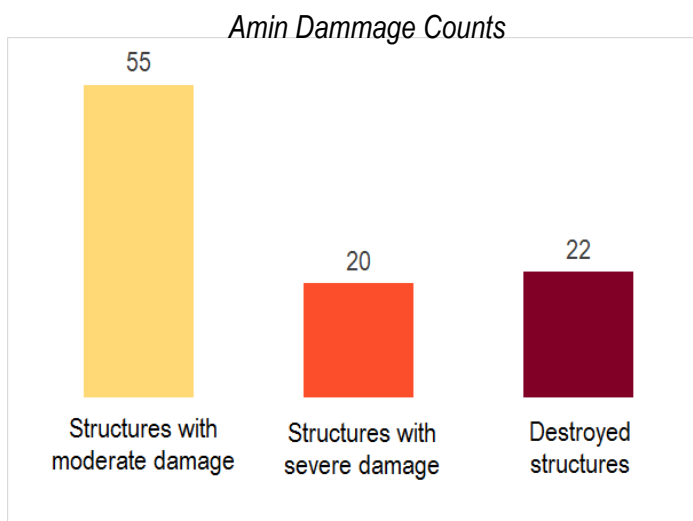


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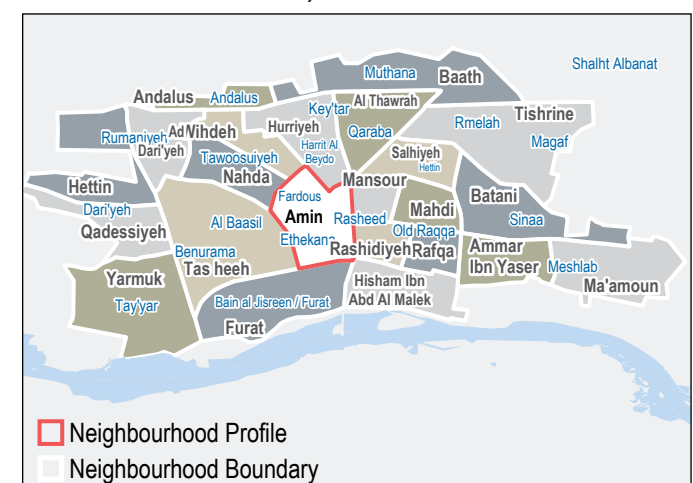
Likely Damaged or Destroyed	
Education	4
Health	10
Key-Infrastructure	26
Park	6
Religious	6
Security	3

* Key-Infrastructure: bakeries and bridges



- Bridge
 Bakery
 Education
 Health
 Park
 Religious
 Security
 Key-Infrastructure

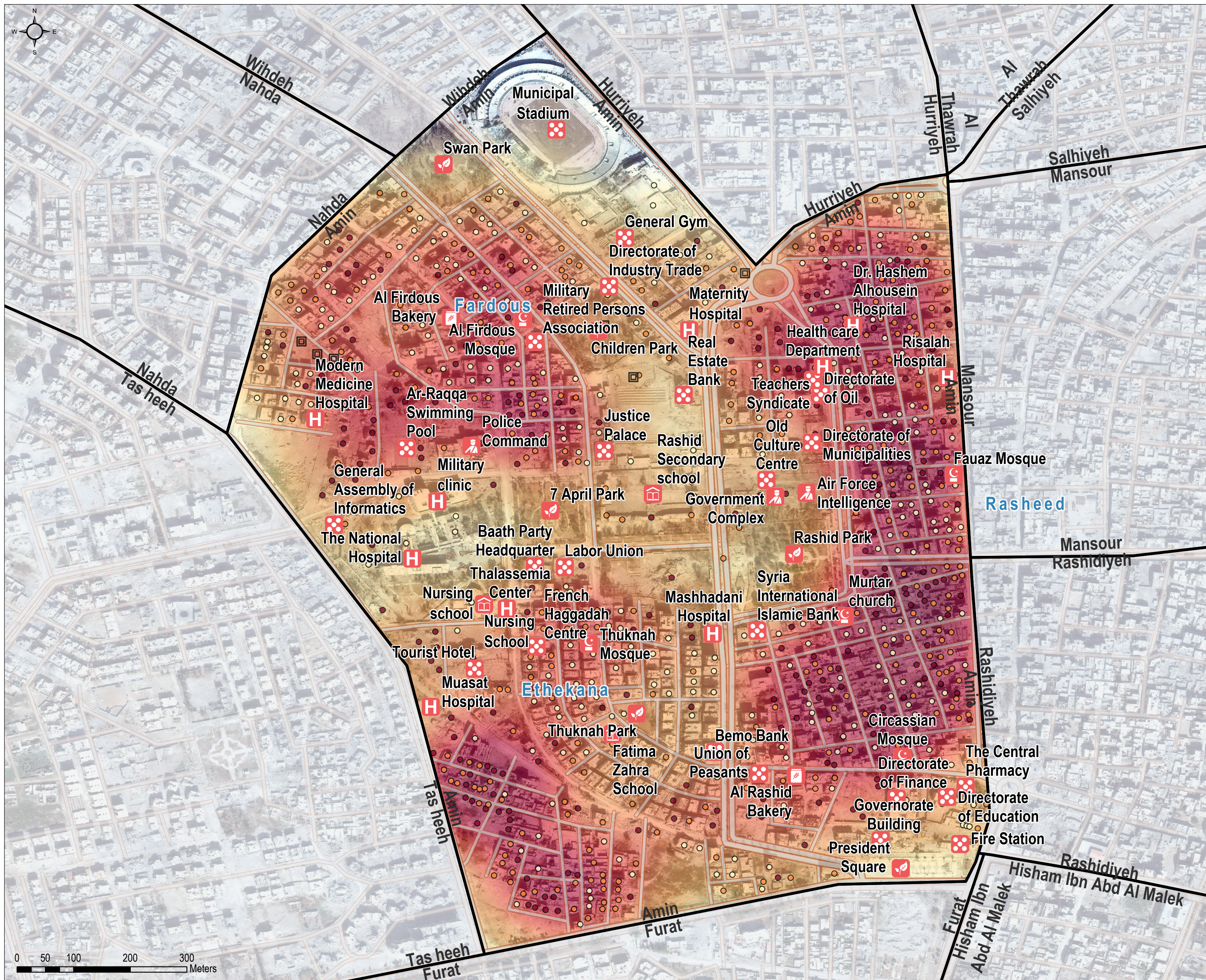
Destroyed
 Severe Damage
 Moderate Damage
 Impact Crater
 Neighbourhood Boundary
- Likely damaged or destroyed***
- *Location within satellite identified destroyed area

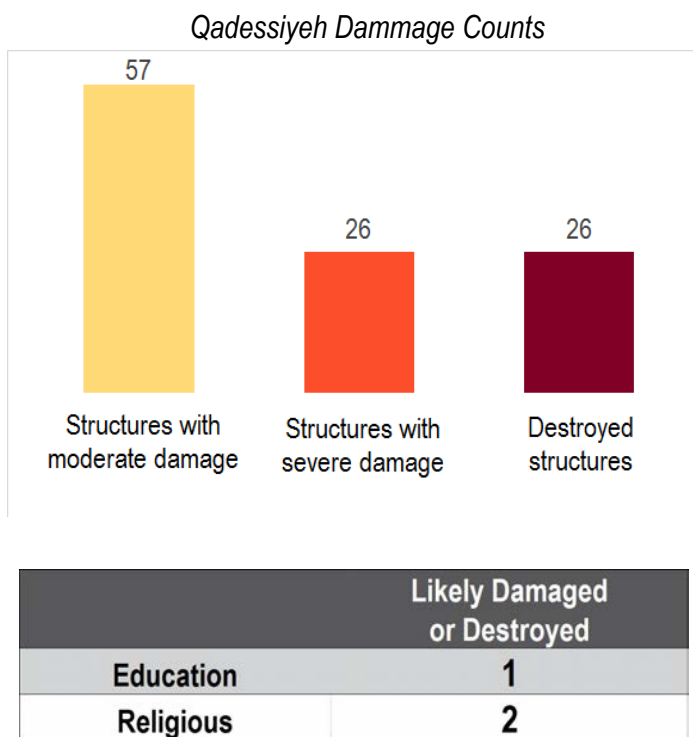


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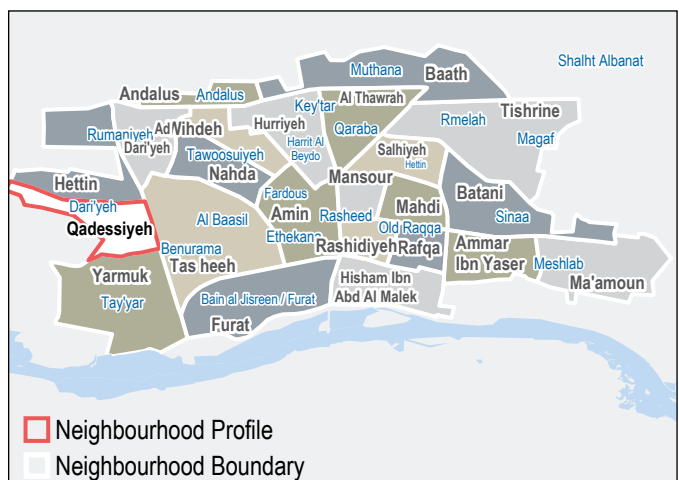
* Key-Infrastructure includes bakeries and bridges



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



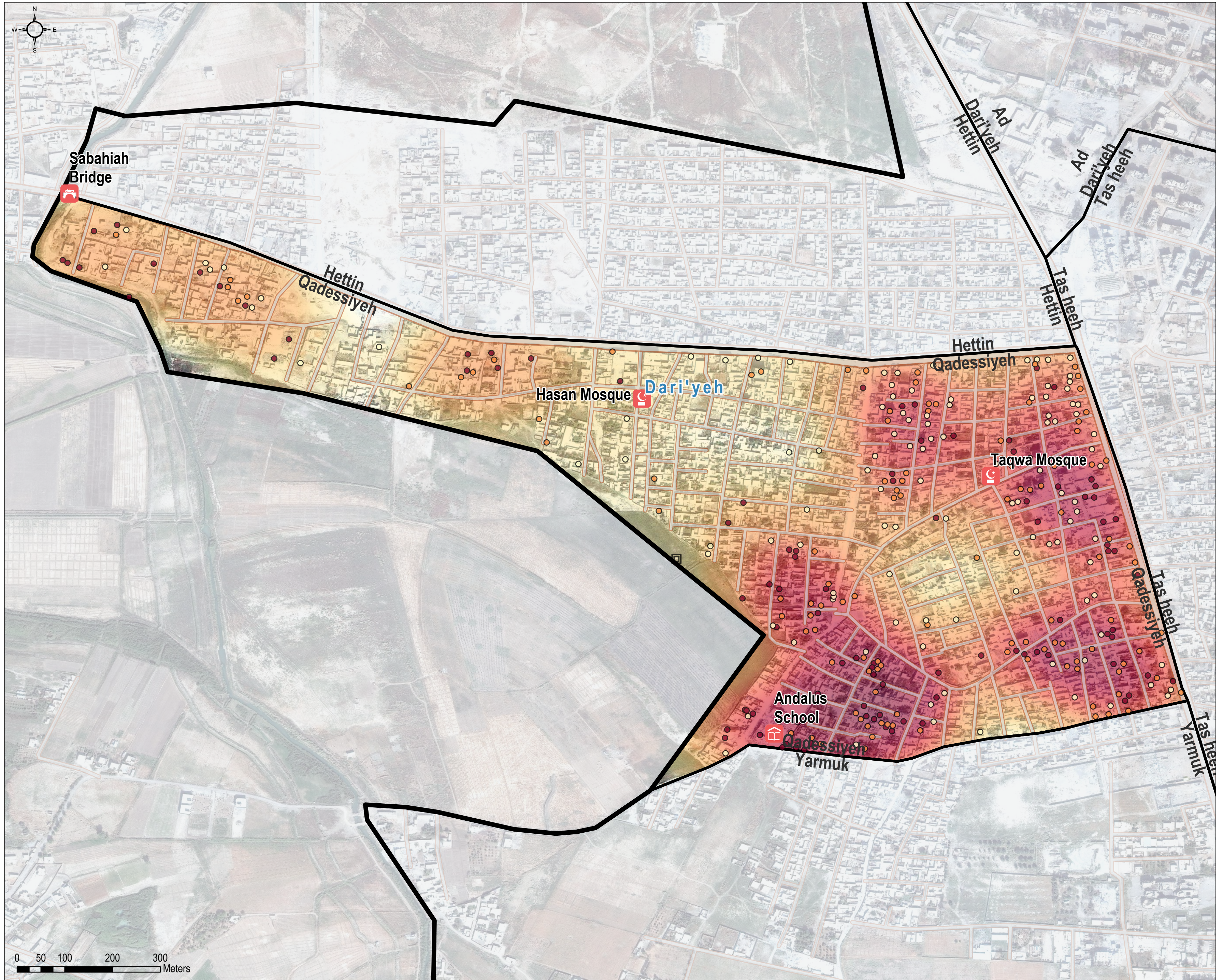
*Location within satellite identified destroyed area



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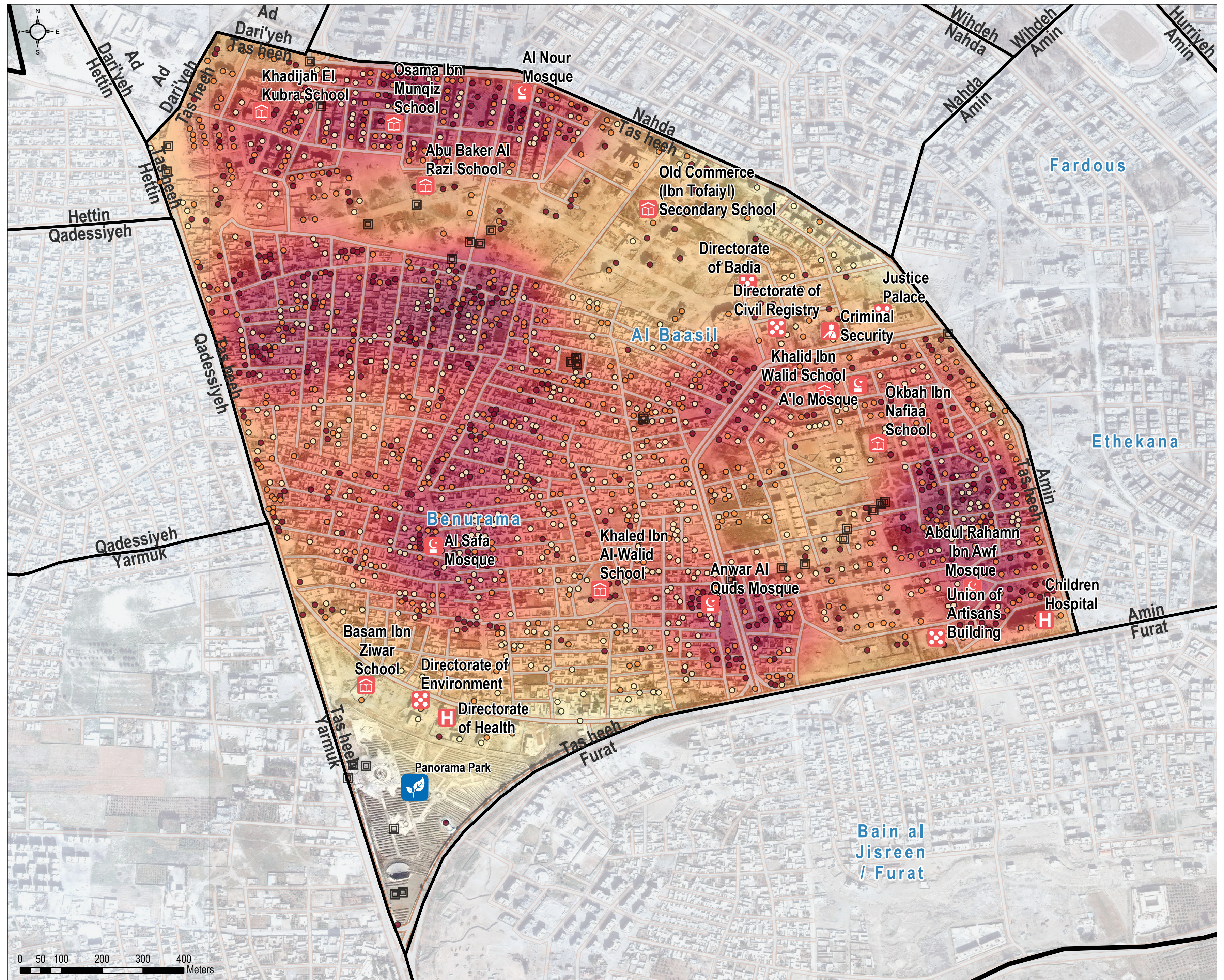
Data sources:
Infrastructure Classification - International NGO Safety Organisation (INSO)
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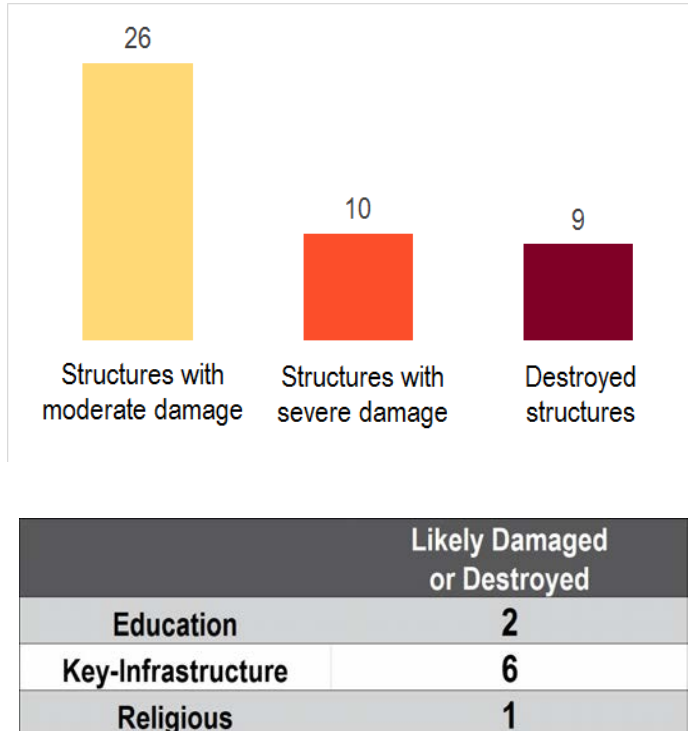
<p>Data sources:</p> <p>Infrastructure Classification - International NGO Safety Organisation (INSO)</p> <p>Satellite imagery: WorldView-3 from 21 October 2017</p> <p>Copyright: DigitalGlobe, Inc</p> <p>Source: US Department of State, Humanitarian Information Unit, NextView License</p> <p>Road data: OpenStreetMap</p> <p>Admin Data: UN OCHA</p> <p>Analysis: UNHCR/UNOSAT</p> <p>Geographic Information: REACT initiatives</p>	<p>Analysis Conducted comparing:</p> <p>Satellite Data (1): WorldView-3 from 21 October 2017</p> <p>Copyright: DigitalGlobe, Inc</p> <p>Source: US Department of State, Humanitarian Information Unit, NextView License</p> <p>Satellite Data (2): WorldView-2 from 03 February 2017, 12 February 2014</p> <p>Copyright: DigitalGlobe, Inc</p> <p>Source: US Department of State, Humanitarian Information Unit, NextView License</p>
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Rashidiyeh Neighbourhood (Old Raqqa / Rasheed)

Satellite-Detected Severity of Structure Damage - 21 October 2017

Rashidiyeh Damage Counts



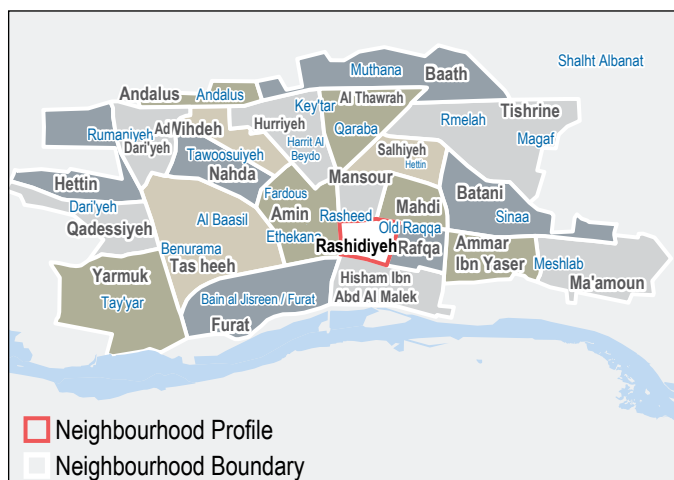
* Key-Infrastructure includes bakeries and bridges

High Damage Severity Low Damage Severity

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



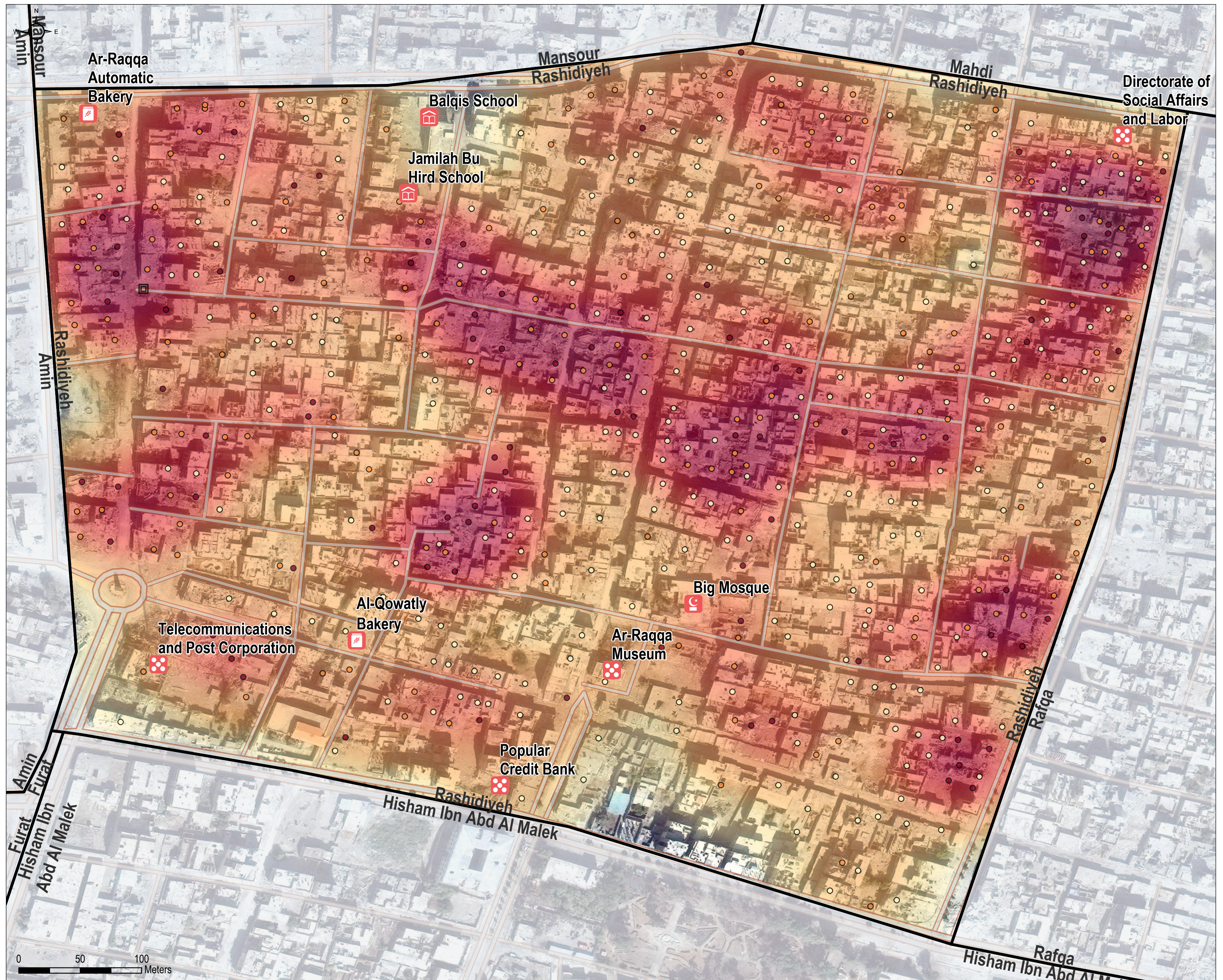
*Location within satellite identified destroyed area



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Data sources:
Infrastructure Classification - International NGO Safety Organisation (INSO)
Satellite Imagery: WorldView-3 from 21 October 2017
Source: US Department of State, Humanitarian Information Unit, NextView License
Road Data: OpenStreetMap
Admin Data: UN OCHA
Analysis: UNITAR-UNOSAT
Production: REACH Initiatives

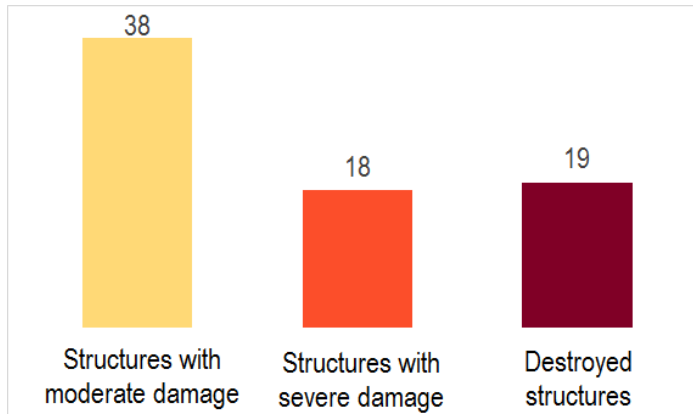
Analysis Conducted comparing:
Satellite Data (1): WorldView-3 from 21 October 2017
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Satellite Data (2): WorldView-2 from 03 February 2017, 12 February 2014
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Rafqa Neighbourhood (Old Raqqa)

Satellite-Detected Severity of Structure Damage - 21 October 2017

Rafqa Damage Counts



Likely Damaged or Destroyed	
Education	1
Health	1
Key-Infrastructure	2
Religious	2

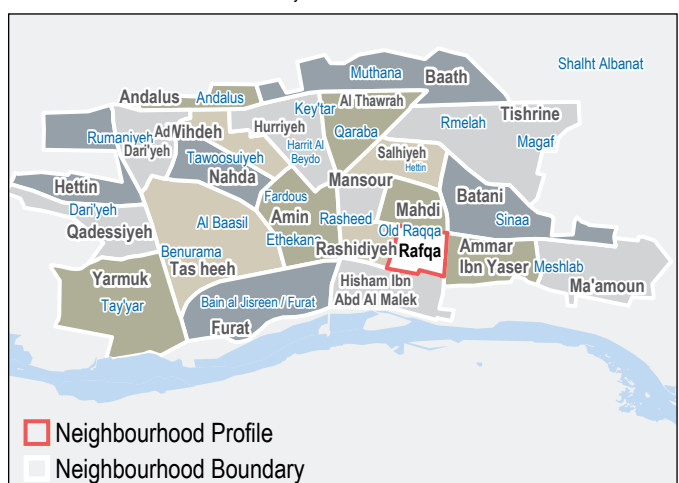
* Key-Infrastructure includes bakeries and bridges



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



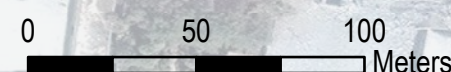
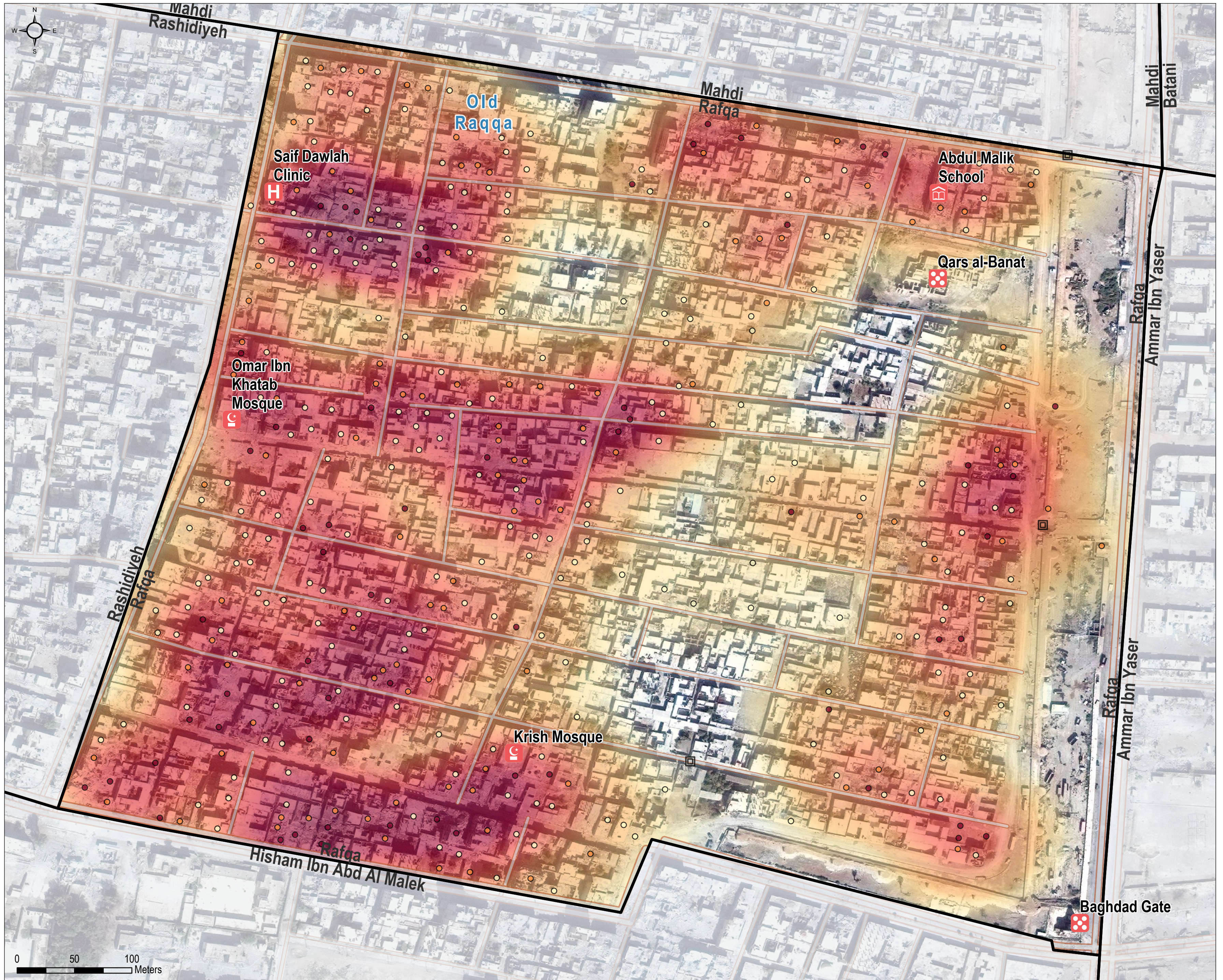
*Location within satellite identified destroyed area



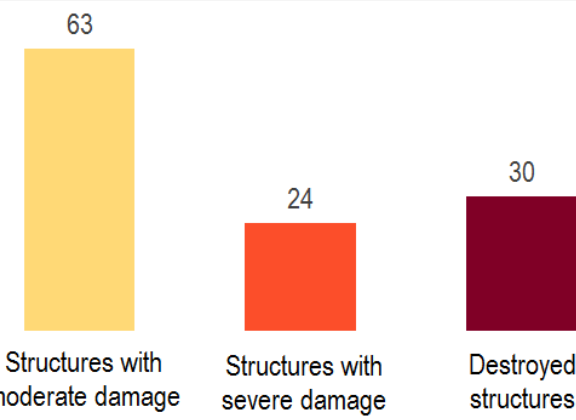
Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates or donors mentioned on this map.

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Infrastructure Classification - International NGO Safety Organisation (INSO)
Satellite Imagery: WorldView-3 from 21 October 2017
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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

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Ammar Ibn Yaser Damage Counts



Likely Damaged or Destroyed	
Education	4
Key-Infrastructure	1
Religious	3

* Key-Infrastructure includes bakeries and bridges

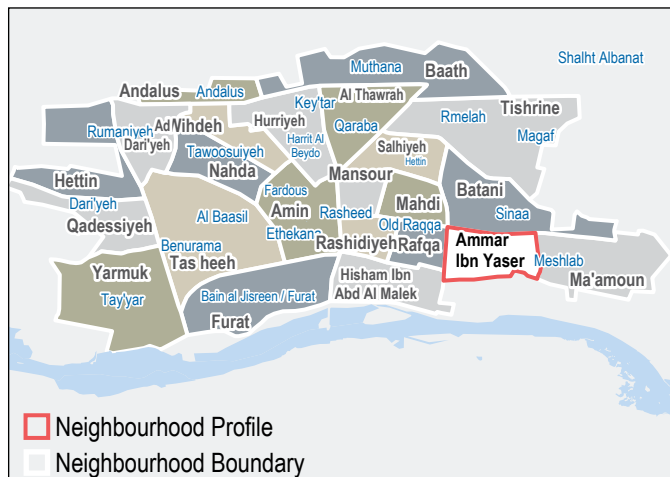
High Damage Severity Low Damage Severity

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

- Likely damaged or destroyed*

 - Bridge
 - Bakery
 - Education
 - Health
 - Park
 - Religious
 - Security
 - Key-Infrastructure
- Destroyed
 - Severe Damage
 - Moderate Damage
 - Impact Crater
 - Neighbourhood Boundary

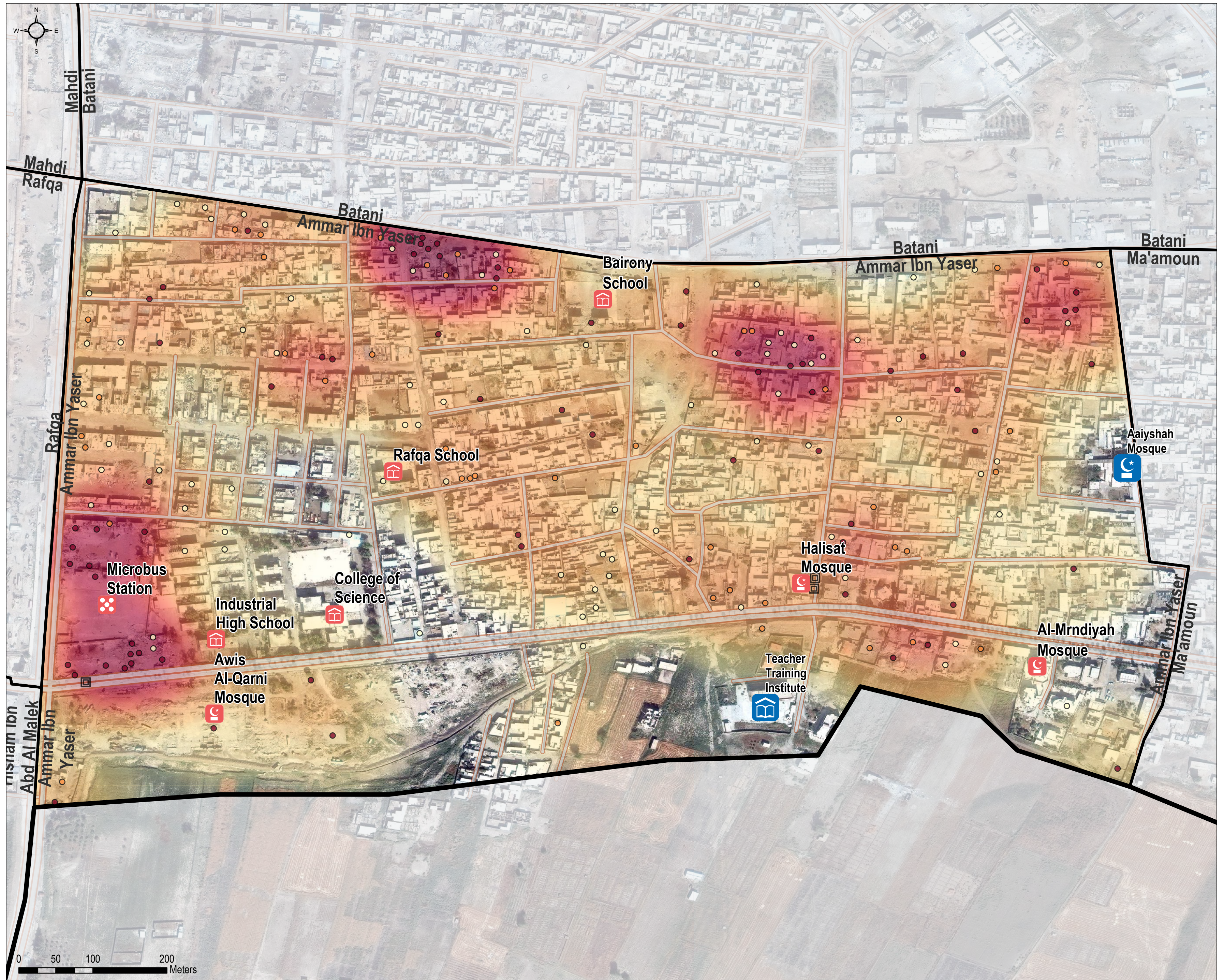
*Location within satellite identified destroyed area



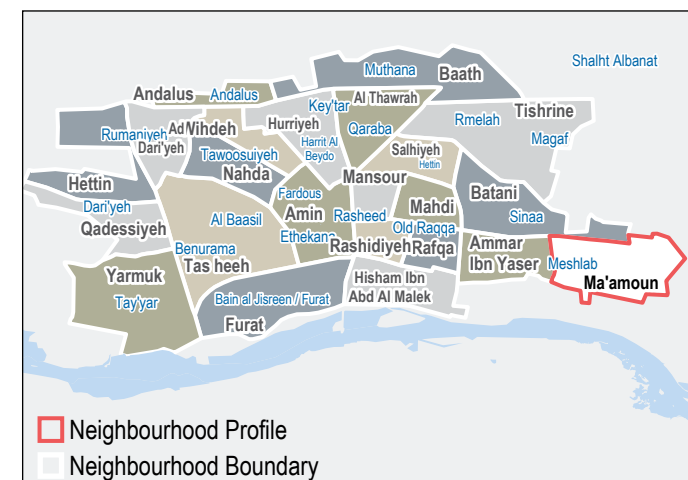
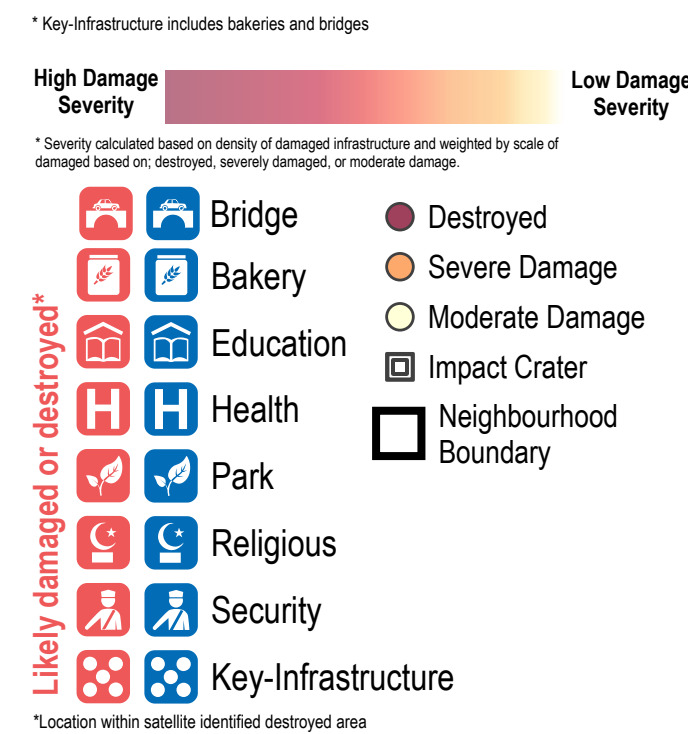
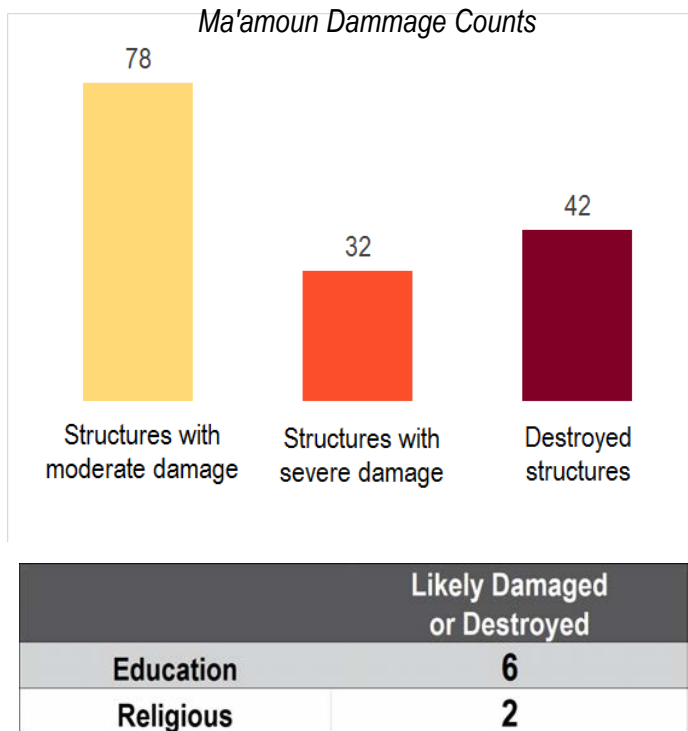
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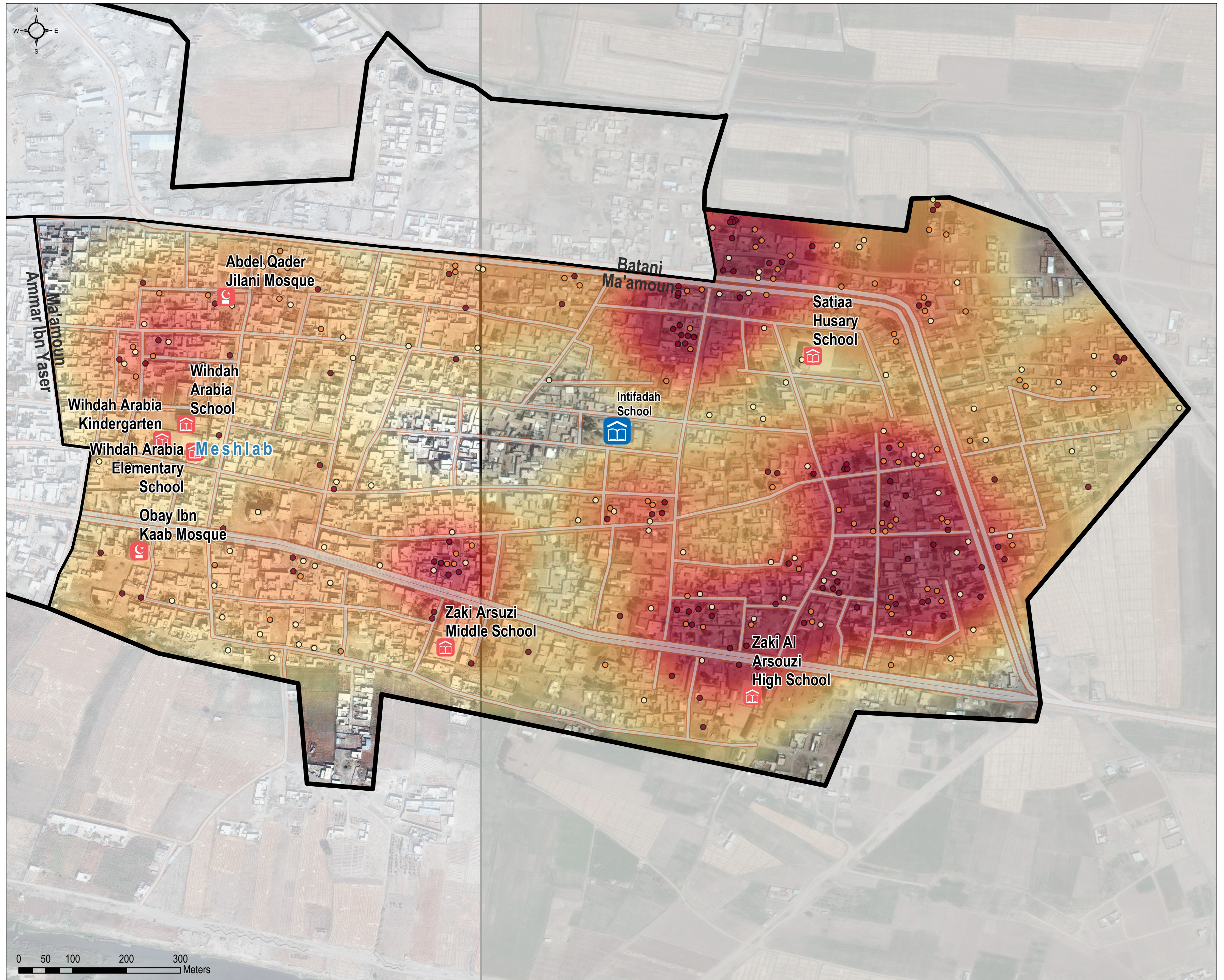
0 50 100 200 Meters

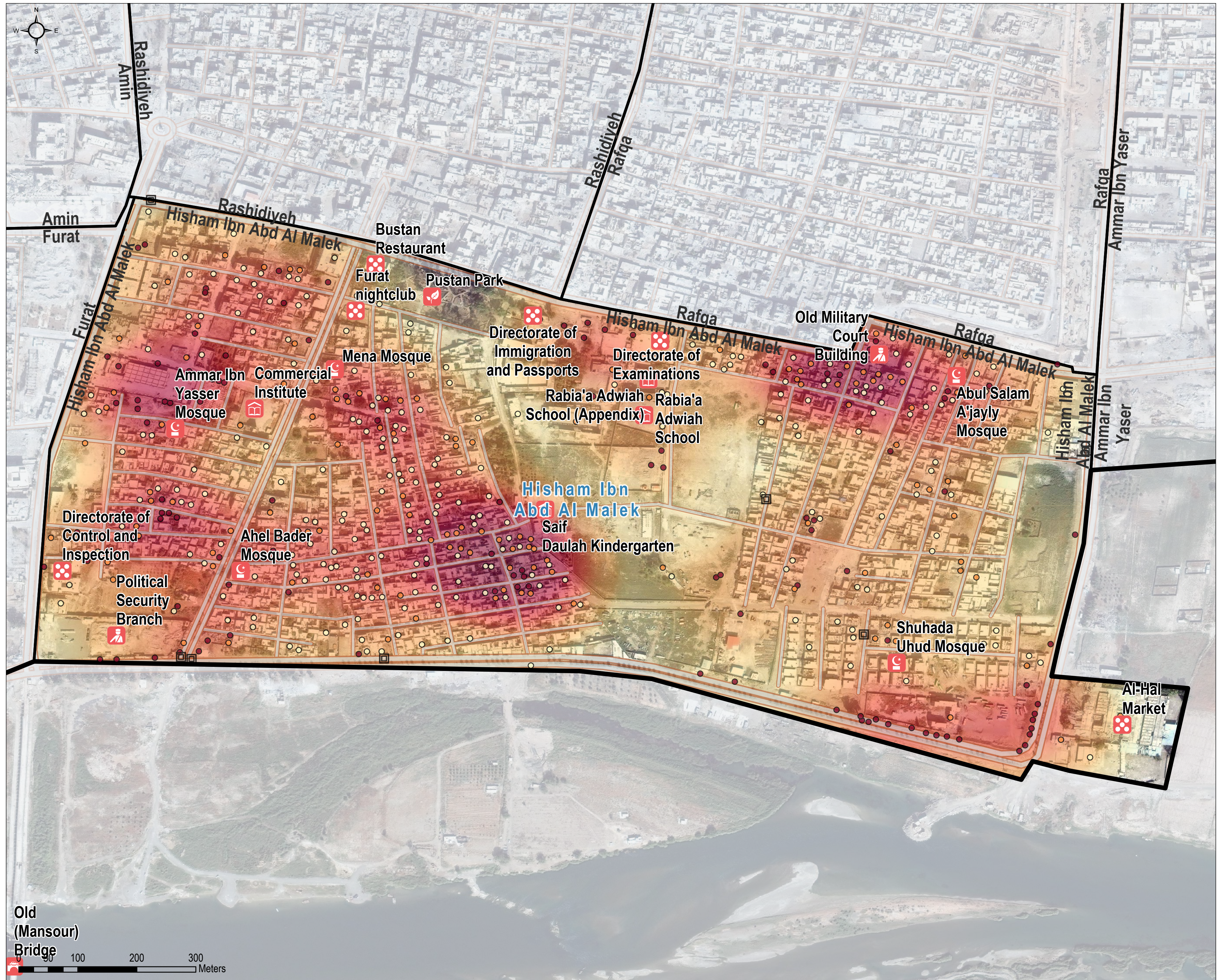


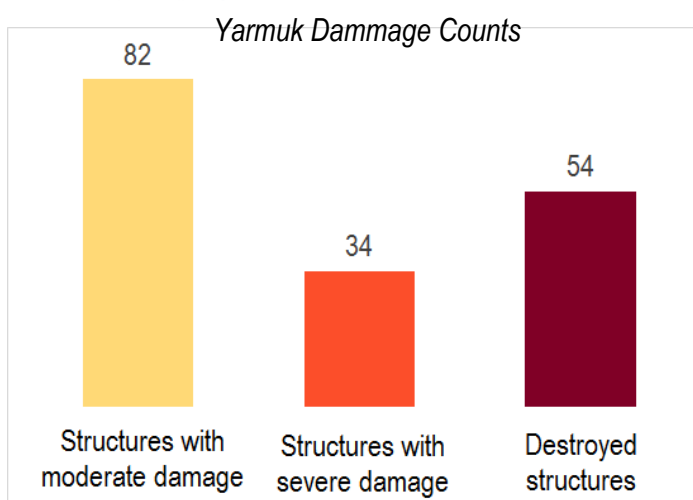
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Likely Damaged or Destroyed	
Education	2
Health	1
Key-Infrastructure	2
Religious	2

* Key-Infrastructure includes bakeries and bridges

High Damage Severity Low Damage Severity

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

- Likely damaged or destroyed*

 Bridge

 Bakery

 Education

 Health

 Park

 Religious

 Security

 Key-Infrastructure

 Destroyed

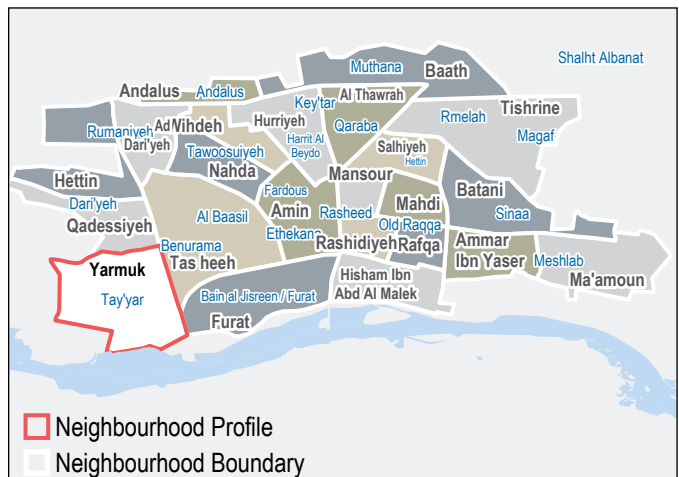
 Severe Damage

 Moderate Damage

 Impact Crater

 Neighbourhood Boundary

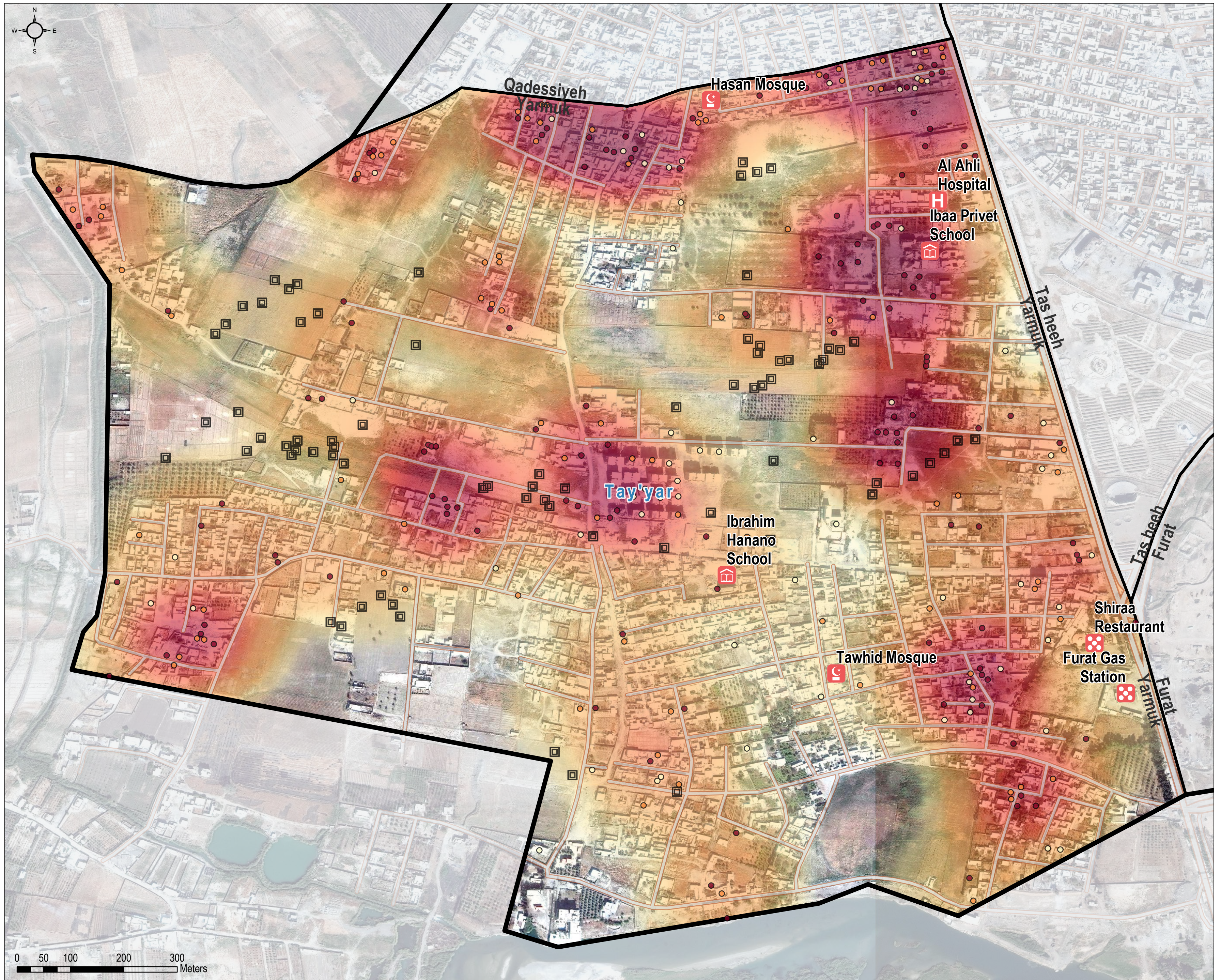
*Location within satellite identified destroyed area



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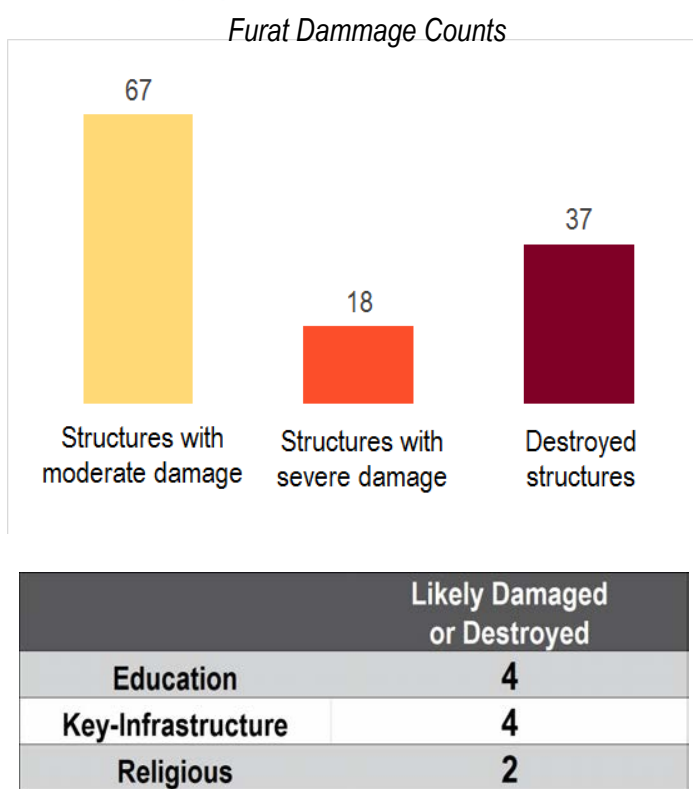
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Furat Neighbourhood (Bain al Jisreen / Furat)

Satellite-Detected Severity of Structure Damage - 21 October 2017



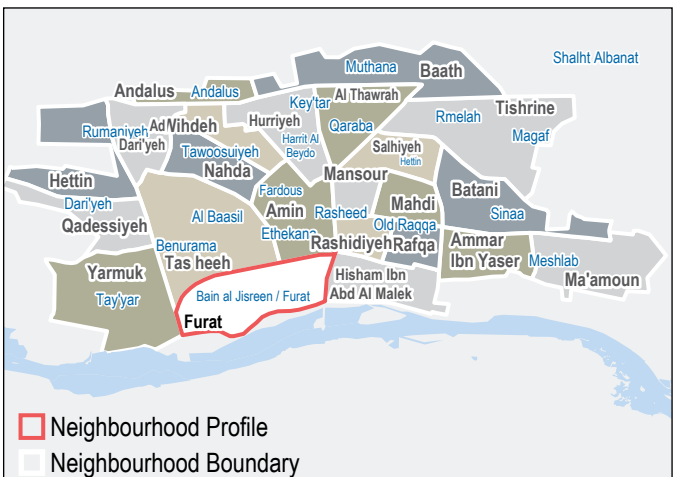
* Key-Infrastructure includes bakeries and bridges



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



*Location within satellite identified destroyed area



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