Concept Notes – The Immigrant Voter Project (IVP)

1. Scope of the Project

The primary goal of the Immigrant Voter Project (IVP) is to help progressives and Democrats win future US elections. The 2022 midterm and 2024 general elections are our current principal targets and include the races for the US House of Representatives, the US Senate, Governor, and the 2024 presidency. Efforts will be made to support political races in many US states; however, our focus will be on winning competitive races in critical battleground states (see *Table 1*, p. 23). In addition, we will take measures to help win down-ballot races in the targeted regions. The IVP will advance campaigns by connecting with immigrant communities in manifold ways (including engaging with immigrant voters in their native languages) and tapping into existing immigrant networks, thereby turning out the vote for progressives. The IVP provides consulting and training to campaigns to build up and significantly improve their immigrant voter outreach. Our work includes researching, developing, and providing dedicated tools (such as online interactive mapping, databases, and APIs) to partners and clients who support these efforts. *Table 6: Comparison of competitors' applications, maps, data and functionalities with the IVP* (p. 27) offers a schematic comparison of the IVP's services to several other competing platforms.

2. About the Immigrant Voter Project

The Immigrant Voter Project (IVP) started in 2020 and is the brainchild of two progressive activist friends, Marjorie Roswell, a freelance developer, and Annabel Park, a campaign consultant and an immigrant rights advocate. Since June of 2020 when he joined the IVP, Karsten Vennemann, principal scientist and GIS Analyst at Terra GIS, has been working with Marjorie and Annabel to create interactive maps and databases. Jack Keller, a campaign consultant with experience working in immigrant communities, joined the project in the summer of 2021 so that the IVP can work closely with campaigns to develop strong messaging and data-based field plans.

Annabel is a Korean American and has spent many election cycles helping Asian American voters who lack English proficiency to participate in elections. Many campaigns fail to reach voters in their districts due to language barriers. The fact that most campaigns do not have access to information that would allow them to reach immigrant voters has prompted us to

action. As a result, the IVP was incorporated as an LLC in late summer of 2021 and will be operating as a business entity. This arrangement was chosen to ensure that the IVP can follow its partisan agenda of supporting progressives without being restricted in any way that the alternative set-up as a non-profit organization would have entailed.

3. Importance of Immigrant Voters and Approach of the IVP

Every year, over eight hundred thousand new citizens are naturalized in the US. Since the year 2000, the number of immigrant voters[1] increased by 93%[2]. As a result, one in ten eligible US voters now possesses an immigrant background (and potentially a native language other than English). The demographics of many US States have been changing at an accelerated rate, and immigrant populations are gaining in political weight and importance. With the massive soar of immigrant voters, reaching and actively engaging with these voters will be one, if not the most, decisive factor in the outcome of future elections. *Table 3: Number and Percentage of Immigrants in Battle ground states (based on 2019 ACS Census tract data by state)* shows the number and percentage of non-native English speakers in US battle ground states.

Most campaigns and advocacy organizations have neither easy access to nor accurate information about their voters. Therefore, they often operate on outdated assumptions or basic and mostly unhelpful demographic data about race and income. The IVP can help campaigns and advocacy organizations facilitate stronger outreach to and engagement with immigrant voter communities. The IVP provides such various relevant services:

- We provide an interactive map containing useful details about immigrant voters in their district or state that greatly supports targeted planning and outreach.
- We collaborate with the campaign and /or advocacy organization on a strategic plan to effectively engage immigrant voters.
- We train the organizations staff to make the most of the tools we have developed (and others we recommend) for reaching immigrant voters.

[1] Immigrant eligible voters are those ages 18 and older born outside the United States who have gained U.S. citizenship through naturalization

[2] https://www.pewresearch.org/hispanic/2020/02/26/naturalized-citizens-make-up-record-one-in-ten-u-s-eligible-voters-in-2020/

One key tool we have developed is our interactive map of immigrant voters in battleground states. This allows us to more easily identify, understand, and target immigrant voters. The information we have includes but is not limited to country of origin, English proficiency, language preference, how people voted in previous elections, and the number of voters registered in that area[3]. The interactive map includes data from two primary sources: the US Census Bureau, including the Census Bureau's yearly survey (American Community Survey), and election data from local voter registrars (Counties and State Secretary of State offices). Those two data sets are referenced on partially differing geographies (spatial boundaries): census units are states, counties, tracts, bloc groups, and blocs, while electoral units are referenced to state, county, and voting precincts boundaries. We currently do not have individual household information or other information from voter files; however, we plan to include those alongside a wealth of additional information in future versions of our maps and the database.

4. Services Offered by the IVP

Some of the IVP's services are mentioned in the previous chapter. In summary, the services the IVP provides to partners and clients include:

- Strategic and practical consulting and training
- Access to our Interactive web map and database tools for planning and prioritization purposes
- Access to an Application Programming Interface (API) for retrieving data, reports and mapping layers from our database and mapping engine

The IVP will focus on supporting the work of campaigns, partners, and clients in battleground states while also supporting races outside the main focus areas. We will support down-ballot races in targeted areas as much as feasible as we continually build up our capacity and develop and improve our database and map services. Examples of target regions include the battleground states Texas and Florida, where there is both need and opportunity to impact the 2022 and 2024 election cycles and beyond positively. *Table 4: Competitive Races* (p. 12) lists competitive races for the House of Representatives for the 2022 elections in several

[3] Our research on how to make the data and map most efficient is ongoing and we are adding to these data on ongoing basis

battleground states. The states we have deemed most crucial and plan to focus our energies into (apart from FL and TX) are Pennsylvania, Michigan, Wisconsin, Virginia, Arizona, and Georgia. Together with additional information and other lists of competitive races, this will guide our efforts for prioritization and determination of focus areas.

4.1. Consulting and Training

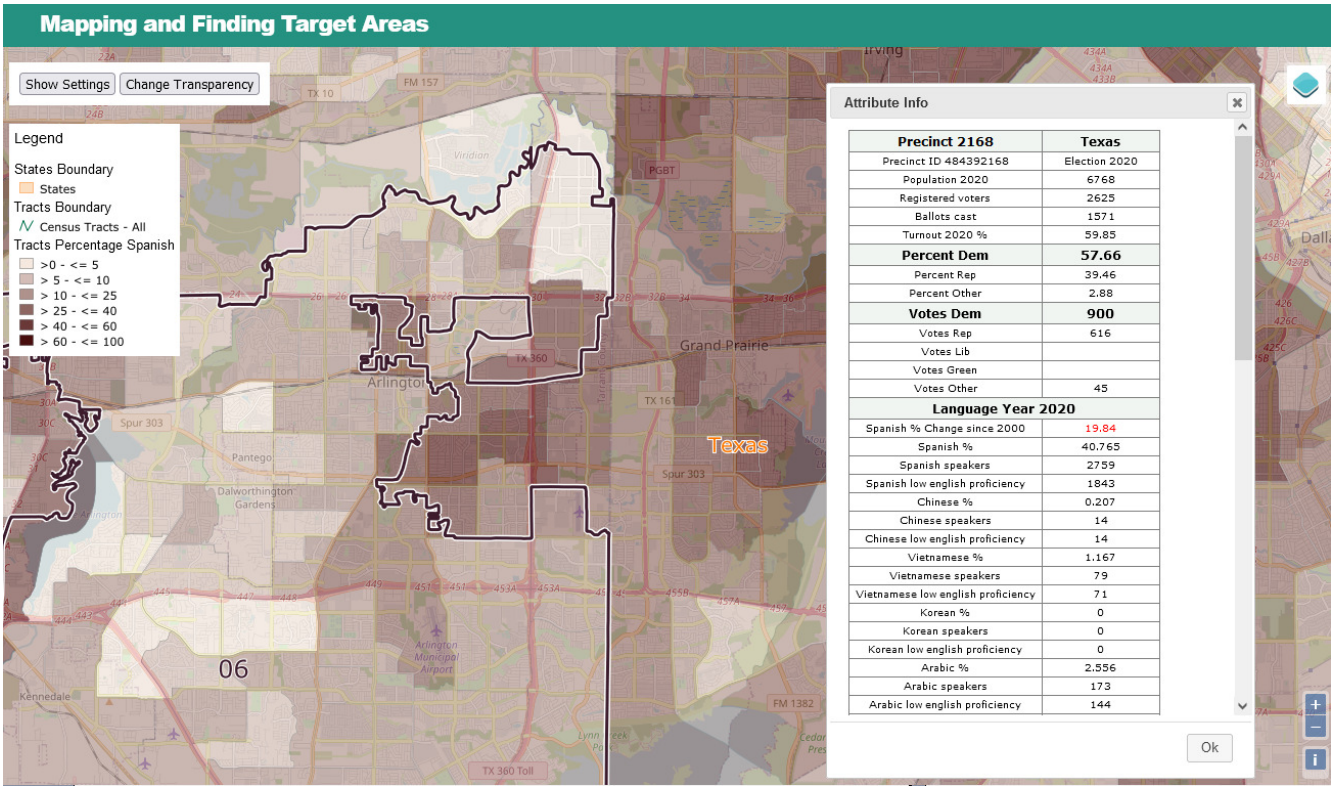
IVP offers strategic and practical consulting and training...

… For *Annabel & Jack to fill in* descriptions of consulting and training services…

4.2. Web Mapping Tool and Database

The web mapping tool is hosted on a password protected site at http://indigolight.terragis.net for use by partners and clients. *Figure 1: Map of Spanish Percent Spanish Speakers in a voting District west of Dallas, TX* provides a first impression of the graphical user interface (GUI) and the mapping application.

Figure 1: Map of Spanish Percent Spanish Speakers in a voting District west of Dallas, TX

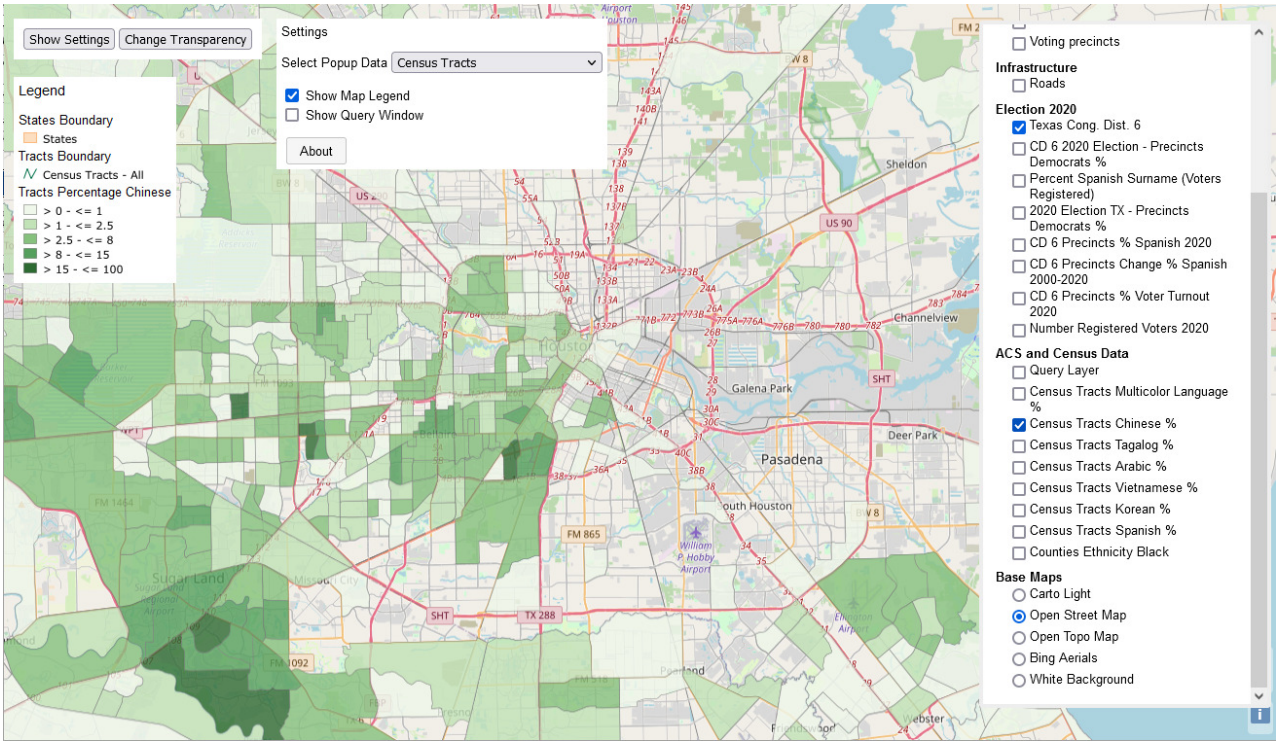


The GUI provides user-driven, intuitive interaction with the map by dynamically switching data layers on/off and displaying immigrant voters' demographics, distribution, and relevant electoral information. The map supports data queries and zooming in to areas of interest to retrieve demographic information such as native language (percentages and numbers), English language proficiency, and country of origin. The second important information set incorporated in the database is electoral information about past elections, particularly the 2020 election. Demographic and electoral information is available for display on the map as a collection of pre-defined, categorized[4] map layers. Reference areas used are census tally boundaries such as census blocs, bloc groups, tracts, and counties, and electoral boundaries

[4] Classes / groups of data cartographically distinguished by colors and/or symbology

such as voting precinct, counties, congressional districts, and lower & upper house and state boundaries in battleground states. The census boundaries mentioned above and the electoral voting area boundaries are spatially different (although they sometimes coincide) but often at least partially intersect and overlap in one or more respective units. This makes it impossible to directly compare the units and data represented in its source form, as is the case when trying to compare data of voting precincts and census tracts. In order to make this information usable for campaigns and make information from the census compatible with electoral units, we used GIS functionality to create number estimates from the census tracts using intersecting fractions/percentages of the areas overlapping to tally estimated numbers of the census data for covered voting precincts. In this fashion, census information was joined to voting areas to help better understand the demographics, including native language data and other immigrant voter information.

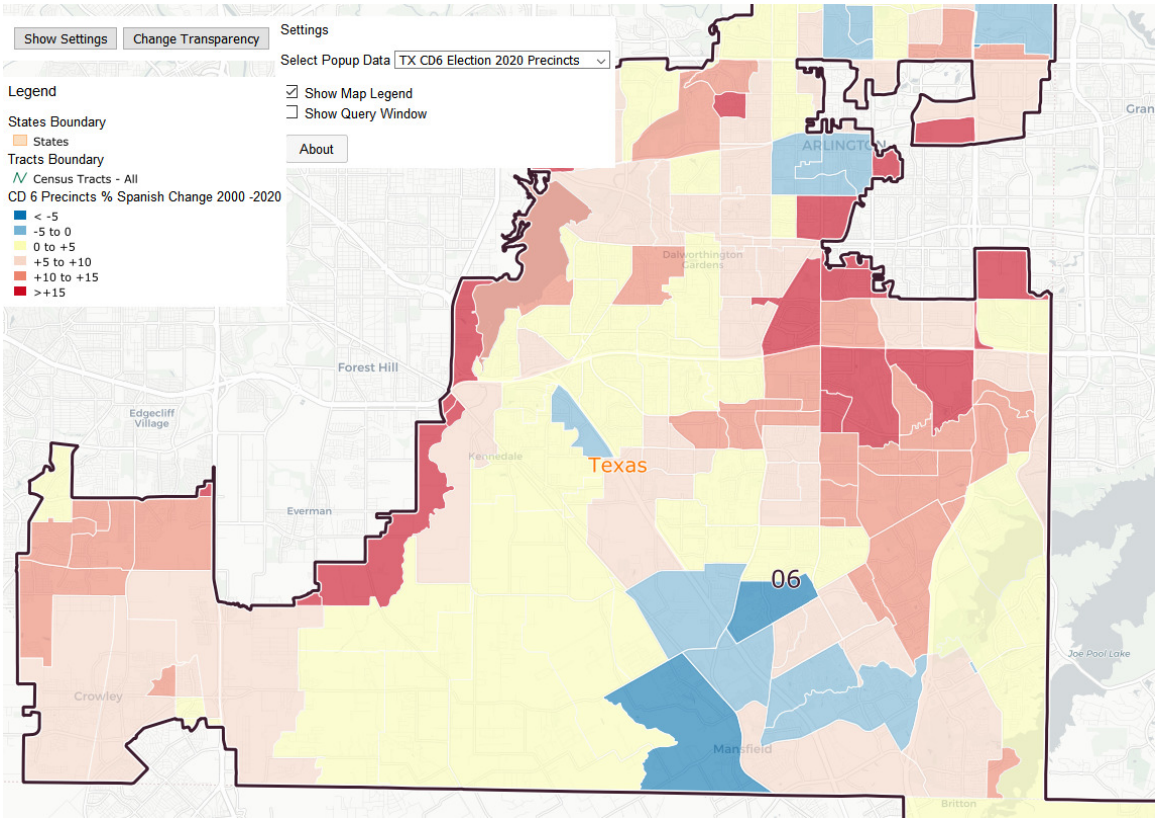
Figure 2: Houston, Texas - Census Tracts Percentage Native Chinese speakers



The default map includes information on six native languages of immigrant voters (Spanish, Arabic, Chinese, Tagaloc, Korean, and Vietnamese), available on the map as classified data layers. Examples of such maps are shown in *Figure 2: Houston, Texas - Census Tracts Percentage Native Chinese speakers* and *Figure 7: Houston, Texas - Census Tracts Percentage Native Speakers - Multicolor Matrix* on page 29.

Comparisons between census 2000, 2010, and the ACS 2019 allow for map layers that highlight demographic changes for those communities. *Figure 3: Change Spanish Speakers 2000-2019 in Precincts - Congressional District 6, Texas* (p. 7) shows an example of the change of Spanish speaking population using the 2020 census and ACS 2019 data in comparison by estimated number for precincts.

Figure 3: Change Spanish Speakers 2000-2019 in Precincts - Congressional District 6, Texas

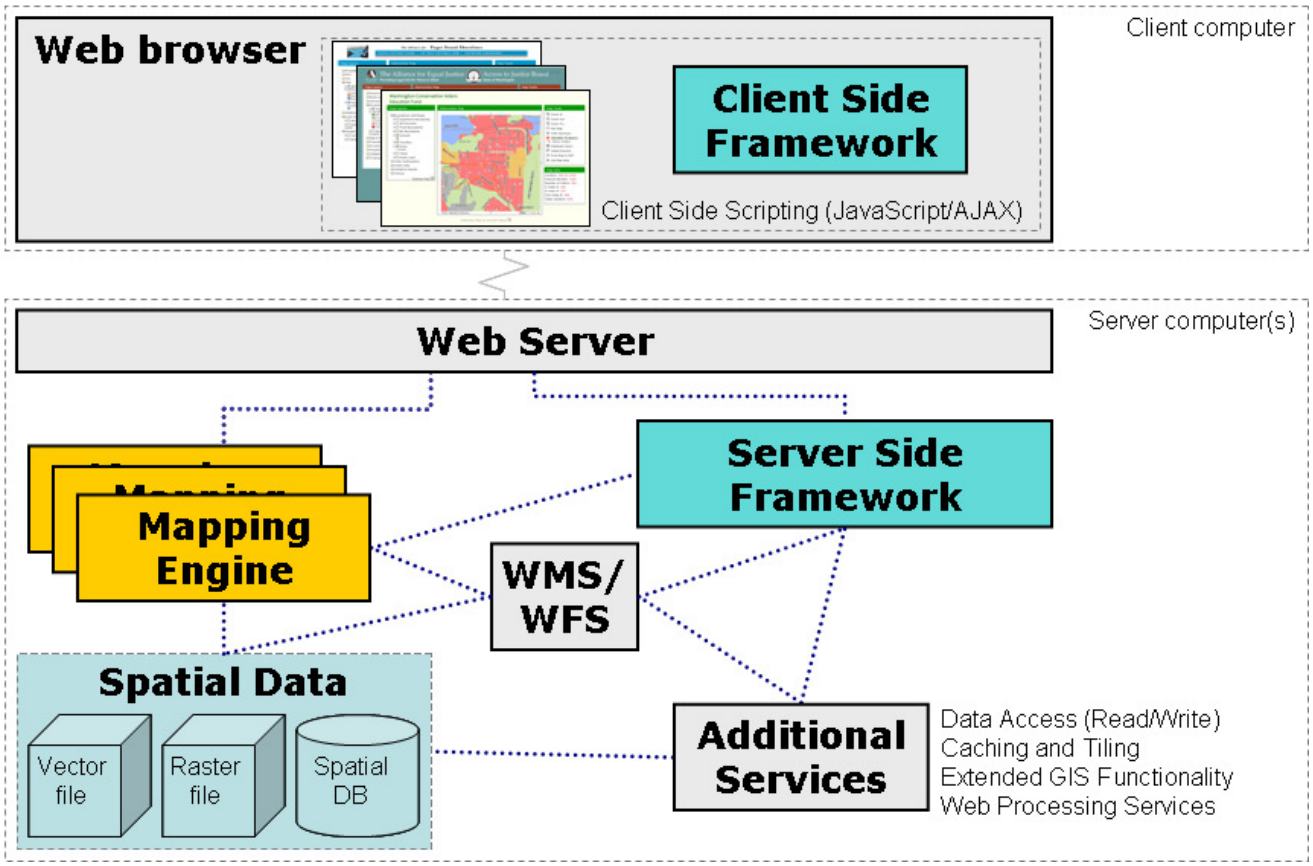


Additional examples of data available on the map are shown in *Figure 5* through *Figure 8* on pages 28 and 29 and include voter registration, voter turnout in the 2020 election, multi-color representation of the largest non-English population for a given area, and more. The existing map application tools allow users to search, query, and identify the data in a variety of summary or aggregation levels such as Upper and Lower House districts, Congressional Districts, Census tracts, Counties, US Postal Zip codes, and precincts. While individual voter level data are currently not in the system, the future addition of such data can improve dedicated targeting using a variety of voter information. Currently, areas of relevance can be queried on the map, and addresses of streets within the located target areas can be exported in spreadsheet format for dedicated targeting and other uses by campaigns.

5. Server Architecture for Database and Map

The interactive mapping tool, database, and API developed by IVP are entirely (100%) based on open source software components. The mapping software stack that enables the spatial functionalities of the application consists of a set of interoperable open source components of open source software projects supported by *The Open Source Geospatial Foundation* (OSGEO)[5]. More detailed information on each of those components can be found on the linked pages of the individual project. *Figure 4: Schematic Overview of the Interactive Web Map Application* below shows the overall (simplified) architecture schematically.

Fig*ure 4: Schematic Overview of the Interactive Web Map Application*



In short, the software components are running on an Ubuntu Linux Server, and web pages are served via an Apache HTTP server[6]. Data are stored in a PostgreSQL[7] database with a PostGIS[8] extension. PostGIS enables the storage, management, and manipulation of spatial

[5] https://www.osgeo.org
[6] https://en.wikipedia.org/wiki/Apache_HTTP_Server
[7] https://www.postgresql.org
[8] https://postgis.net

data types above and beyond that of non-spatial data. Server backend services are implemented in PHP and Python. On the server-side, the mapping components encompass MapServer[9], a map rendering engine, and MapCache, an Apache module that enables the creation and serving of map tiles. MapServer is a *Common Gateway Interface* application (CGI)[10] that includes an *application programming interface* (API)[11] and allows for configuring, defining, and creating cartography of map layers from many input sources. It serves the data in a variety of standard web services, such as Web Map Services (WMS)[12] or Web Feature Services (WFS), in vector tile formats and more. These map services are compliant with the standards of the Open Geospatial Consortium (OGC)[13] and, to a great extent, are software agnostic. The front end of the application (in simple terms, what a user sees in a web browser and the interface the user interacts with on the map) is comprised of a web map viewer based on the OpenLayers[14] and JQuery[15] libraries, with the help of custom of HTML/CSS/JS code. OpenLayers is a JavaScript library that significantly supports and facilitates the standardized creation of interactive web maps using the standards mentioned above (e.g., WMS[16]). OpenLayers includes an API that facilitates and includes objects and methods that facilitate the creation of custom map tools more powerful than standard map tools. Such tools allow for user interaction with the map such as panning and zooming, navigation on the map, identification of features on the map, standardized inclusion of a variety of map layers, dealing with map projections, selection and filtering of data, cartographic display and styling, client-side manipulation of data, and more.

[9] https://mapserver.org/
[10] https://de.wikipedia.org/wiki/Common_Gateway_Interface
[11] https://en.wikipedia.org/wiki/API
[12] https://en.wikipedia.org/wiki/WMS
[13] https://en.wikipedia.org/wiki/Open_Geospatial_Consortium
[14] https://en.wikipedia.org/wiki/OpenLayers
[15] https://en.wikipedia.org/wiki/JQuery
[16] https://en.wikipedia.org/wiki/Web_Map_Service

6. Approach for Building and Improving the Capacity and Offerings of the IVP

6.1. IT Infrastructure

Changes will need to be made to the existing preliminary IT infrastructure in order to secure the functionality and professional use of all IVP tools, the database, and the API. Most importantly, a dedicated Web Server for the IVP will need to be set up. Proposed steps include but are not limited to the following:

- Setup and complete installation of all required software on a new dedicated server that will run the IVP web mapping application and store and manage data. Software includes HTTP Web server (apache2 software), server-side languages (PHP, python), geospatial libraries (GDAL/OGR, PROJ, etc.), and PostgreSQL/ PostGIS relational database.
- Interactive front end (web map on web page): Porting existing HTML/JS based map viewer code (based on OpenLayers 3) to newest stable version of the software (OpenLayers 6). OpenLayers acts as the map viewer component that the users interact with in their web browser. The OpenLayers (OL) library and API. For example, OpenLayers enables the interactive tools of the web map, such as zoom, pan, and switch on/off layers, etc.

  This step will require us to rewrite the code to port it from the OpenLayers 3 API to OpenLayers OL version 6.
- Mapping visualization capability (on server): Installation of a map rendering engine (MapServer) and map tiles caching component (MapCache) that allows generating cartography of the web maps (images) from our data. Those images are what enables the cartographic display of the data as map layers inside the map viewer listed above.
- Transfer and loading of existing data form the database and storage: Import of GIS data into a (PostGIS) database and configuration for serving maps and the data layers for battleground 12 States. This requires dumping the data from the old server database and transferring and importing it into a new and updated PostgreSQL/PostGIS installation.
- Data Additions
    - Points of interest, OSM and other sources, churches, grocery shops, etc.
    - Census 2020 data

- Election data, historic and other
- Building and parcel data
- Population data, such as density to determine rural / urban
- Voter files with values added from third-party vendors (ethnicity, language, geocoded addresses, country of origin, etc.)
- Research additional data sources for immigrant communities, networks, multipliers, etc.

6.2. Proposed Research and Additions to the Map and Database

Our ongoing efforts include finding and acquiring relevant data sets that can be used by themselves or in various combinations to derive potential new insights. Innovative research on such data sets, their possible combinations, and further processing can improve our knowledge of spatial patterns relevant to managing election campaigns. Specifically, information on immigrant voter communities, their existing networks, and community facilities will allow us to find creative and effective ways to target those voters. Examples for such additions are data on locations of sports and other community clubs, languages schools, nurseries, grocery shops, churches frequented by immigrant communities, and even housing units with larger immigrant communities among other points of interest (see *Table 1*, p. 12). Selections of new functionalities, data additions, and processing steps for subsequent phases of the project include:

- ***Extended Filter and Query Capabilities***: We will create and configure a basic filter tool for the web map. The user can filter the map display using a drop-down menu. The tool will allow users to select and filter data dynamically using a combination of multiple indicators, such as total population, foreign language speaker %, English proficiency (low-high) and % population with an immigrant background. For example, a user could select the indicator ‘Low English Proficiency’ (from a drop-down list with all relevant data columns) and then apply a filter (e.g., “above 25%”). The map would then display only those areas that correspond to the filter.
- ***Database and Data Layer Additions:*** Relevant additions will be determined by our ongoing research efforts as outlined in *Table 1: Data additions to improve the map and analysis capabilities* (p. 12) and Chapter 6.2.

- Configurable tool to generate ***Opportunity Reports*** on areas of interest for electoral campaigns. We will review methods that have worked in past elections and campaigns in other geographic areas of interest and apply relevant concepts to similar regions with comparable areas and demographics.
- Processing of all relevant 2020 Census data (and other relevant point of interest data); additions to our map, database, and query builder.
- Processing of all voting precinct 2020 election results; calculation and union of demographic data from the census as estimated via overlapping area fractions
- Addition of voter files and subsequent processing of such data to derive additional insights and methods of targeting immigrant voters. Voter addresses can be geo-coded and used for various purposes (e.g., when searching for apartment buildings with a high number or percentage of immigrant voters).
- Research and review of artificial intelligence and data mining techniques in order to gain additional insights on immigrant voters.

Table 1: Data additions to improve the map and analysis capabilities

Data Type	Name and/or use	Source
Supporting data sets	Rural Areas, Low population density	Census, CIESIN[17], and other sources
	In language radio station coverage areas	TDB
	Events and location for sport clubs events , cultural performances, sport matches and times	TBD
	Locations and areas or in language newspapers and media	TDB
Points of interest	Grocery stores, Churches, Clubs and other relevant community assets	OSM places, geo names, and many others
Voter individual information	Voter files. Manifold uses , e.g. geocoded voter locations and addresses can be used to find apartment building with immigrant voters	Counties, third party vendors, campaigns
2020 Census	Ethnicity, Language and Country of origin updates and much more	US Census
Initiatives	Information of past initiatives and voting outcomes in areas where applicable	Counties, TBD

[17] https://www.popgrid.org/ciesin

6.3. Proposed Application Programming Interface (API)

We are planning to develop and implement a web-based Application Programming Interface (API) that will allow organizations and developers to query and retrieve data from our database using HTTP services via a RESTful web API.[18] Such services will include querying, retrieving, and delivering data on target areas (e.g., data for a selection of voting districts or an entire congressional district) in multiple output formats covering a variety of purposes. These include but are not limited to the following:

- Raw data retrieval from the database. File output formats include comma-separated (CSV), (Geo)JSON, MS Excel and PDF.

- Direct (scriptable) API access and usage of the client and partner organizations to integrate and bind to their own, web-based system and database applications. This can be used for tighter system integration with existing services and applications.

- Dynamic Web Map Services (WMS) that can be included in map clients (web and desktop). In addition, the API can include support for spatial queries and data processing. Static outputs are available as map images (or Map tiles) in bitmap format (e.g., jpeg and png). Moreover, all output formats and services that are part of the OGC WMS specification[19] will be available via the interface.

- Generation of Reports ("opportunity" reports). Reports will be auto-generated (PDF) documents that include maps, recommended actions, and ranked target areas. This breakdown will be highly useful for campaigns and partners.

Access to the API feature can be limited to partners and clients by using user and password protection via proxy server configurations and/or by implementation of access tokens for specific dedicated web services.

7. Financial Needs for Building the Next Phase of the IVF

Further phases of research and development of IVP offerings and services will require additional funding and resources. Our ability to effectively target immigrant voters relies

[18] https://en.wikipedia.org/wiki/Representational_state_transfer
[19] OpenGIS Web Map Service Interface Standard (WMS) - https://www.ogc.org/standards/wms

heavily on being able to conduct innovative research on relevant data and data processing, find creative ways of deriving new information, and further develop effective tools to support clients and partners. *Table 2* (below) lists the minimum budget needed to fund the IVP's second development phase. Higher budgets would enable quicker and broader growth: more inclusive tool development, comprehensive data processing, and expanded practical consulting and training services. In addition, they would expand our geographical focus and increase the number of electoral races we can support.

Table 2: Required Minimum Budget for IVP Phase II (through the 2022 election cycle)

Item	Tasks	Budget in US $
Data additions map and database	Data acquisition and processing Loading data into database Adding data layers to map and query tools	20,000
	Acquisition of third party enriched voter files	20,000
IT setup and tool development	Set-up of the new IT infrastructure and implementation of tools, coding	25,000
API	Implementation of data API and reports	15,000
Research and Development	Research of innovative ways to	20,000
Consulting and training	Development of Consulting and training classes, content, offerings and materials	15,000
Voter Outreach and Campaign Strategies	Development of integrated campaign and outreach strategies. Documentation, set-up of materials and development of implementation plans and templates	25,000
Design and GUI webpage and tools	Webpage and training class materials design, Improvements of web map usability an interface	15,000
Project Management	Managing of the IVF Project	25,000
Legal, Accounting and Overhead	Legal Representation and support, Accounting and Overhead	20,000
Sum		**200,000**

… For *all to add / edit the table content* …

8. Budget and Fundraising

In 2020 and early 2021, Annabel Park and Marjorie Roswell made initial investments in the IVP. In the late summer of 2021, Marjorie Roswell donated $20k to the IVP to help start the business. Talks with various partners, collaborators, and potential donors/investors are ongoing.

… For *Annabel to fill in our approach goals and strategies* …

9. Appendix

9.1. Recent Networking Connections and Potential Partners

Contacts and Organizations our team recently talked to include

Contact Name	**Organization**	**Category**
Niketa Kumar niketak@advancingjustice-alc.org	Asian Americans Advancing Justice – Asian Law Caucus	potential client
Jill Nguyen jill@helmteam.us	Helm https://www.helmteam.us/	potential partner
Will Carter willcarterwv@gmail.com		potential partner connector to donors
Joe Jacobsen joe@fundprogress.org	Progress Action Fund www.progressactionfund.com	potential partner
Ernie Connon connonernie@gmail.com		advisor, donor ?
Pierre Hollis pierre@h-v-holdings.com		advisor, donor ?
Victoria Slatton vslatton@americasvoice.org	America's Voice (AV) https://americasvoice.org/	potential partner, potential client ?

9.2. List of Attendees of Annabelle's Panel on Immigrant Voters at Netroots Nation, Online, October 9th 2021

Anne Clark
Campaign Manager
N.C. Rep. Graig Meyer

Jack Keller
Strategy and Planning Director
Immigrant Voter Project

James McBride
Community Ambassador for VA Dems Relational Team
https://linktr.ee/KeepVABlueCrew

Dan Jacoby
Campaign Field Consultant
Dan Jacoby

Rebecca Wall
Vice President, Digital Communications
National Immigration Forum

Koraan-Jamar Kenner
Chief Technical Officer
Ex Marketer

Kevin Pujanauski
North America Lead
Social Movement Technologies

Laura Hickernell
Organizing Manager
Mothers Out Front

Eric Hoffpauir
Campaign Director

Dale McGrew
Executive Director
We Vote

Marjorie Roswell
Research Director
DIY Green

Michael Chaitow
College Organizing Director
J Street

cont.
List of Attendees of Annabelle's Panel on Immigrant Voters at Netroots Nation
Online, October 9th 2021

Ellen Brodsky
blogger
NewsHounds and CrooksAndLiars

Leighanna Hooper
Data Products Intern
TargetSmart

Laurel Potter Huerta
Managing Director
WDN Action

Gabriela Cristobal
Women's Coalition Director
DNC

Becka Wall
Vice President, Digital Communications
National Immigration Forum

Carmen Chang
Organizing Director
California Immigrant Policy Center

Doug Foote
Freelance Digital Strategist
Footprint Campaigns LLC

Tim Phan
netroots tech moderator / data analyst

AJ Hedrich
Political Assocaite
Indivisible

Hector Portillo
Senior Database Specialist
SEIU

Danielle Tomson
Columbia University

Sophia Kozub
National Digital Campaigns Associate
Everytown for Gun Safety

cont.
List of Attendees of Annabelle's Panel on Immigrant Voters at Netroots Nation
Online, October 9th 2021

Matt Denner
Senior Digital Strategist
GPS Impact

Yasmeen Ally
Digital Assistant
Democratic Legislative Campaign Committee

Jesse Swinger
Director of Video Production
Florida Watch

Sarah Flourance

Brette McSweeney

Laura Proescholdt
Digital Strategist
TakeAction Minnesota

Lindsay Malloy

Allison Sardinas
National Campaigns Manager--East
The Center for Election Science

Adam Hyland
Co-Founder
The Juggernaut Project

Connie Gao
Product Manager
ActBlue

Daniel Weise
Activist
None

Santiago Rosales
MICO Associate
ActBlue

cont.
List of Attendees of Annabelle's Panel on Immigrant Voters at Netroots Nation
Online, October 9th 2021

Shayna Adelman
Organizer & Disability Justice Advocate

Elbert Garcia
Director of Strategic Communications
National Committee for Responsive Philanthropy

Tom Sullivan
Blogger / "For The Win" author
Digby's Hullabaloo

Mary Stevens
MoveOn Community Support Team

Jess Newman
National Political Manager
United For Respect

Michael Schaeffer

Drew Olsen
SEIU

Rachel Shippee
Digital Campaigns Specialist
Everytown for Gun Safety

Nikki Sumrow

Joshua Gottlieb
Digital Fundraising
Everytown for Gun Safety

Veronica Aguilar
Communications Manager
El Pueblo

Joshua Johnson
Community Organizer
UFCW 21

cont.
List of Attendees of Annabelle's Panel on Immigrant Voters at Netroots Nation
Online, October 9th 2021

Lesley Lopez
Delegate
Maryland General Assembly

Marcela Aguirre
Assistant VP of Digital Communications
National Immigration Forum

Dawn Kikel
Political Strategist- Field, Tech, Digital
Athenia

Ashley Tjhung
Senior Policy Associate
Indivisible

Jill Nguyen
Director of Civic Partnerships
Helm Labs LLC

Rochelle Dunmore
She/Her

9.3. Information About Immigrants in Battleground States

Table 3: Number and Percentage of Immigrants in Battle ground states (based on 2019 ACS Census tract data by state)

State	Popula-tion	Spanish number	Spanish % (of pop.)	Spanish number low English[20]	Chinese number	Chinese number low English	Vietna-mese number	Vietnamese number low English	Korean number	Korean number low English	Arabic number	Arabic number low English	Tagaloc number	Tagaloc number low English
Arizona	6946685	1338389	19.27	447267	34917	17440	23792	13695	9983	4777	25342	9736	26633	6820
Colorado	5531141	612425	11.07	217269	24813	12234	19998	10987	14299	7025	11666	4077	8164	2357
Florida	20598139	4199678	20.39	1796684	74711	40564	61725	34894	20365	10177	58147	18832	65966	18859
Georgia	10297484	770037	7.48	333966	49100	25311	45853	28138	47552	25302	18798	6303	13048	3421
Iowa	3132499	118709	3.79	48880	12313	7325	8549	5594	2859	1352	7986	3489	2947	1312
Michigan	9957488	279967	2.81	96044	50366	25309	14373	8117	15463	7434	138749	58453	16348	4490
Minnesota	5527358	200863	3.63	82528	23981	11427	23106	13270	5333	2221	13635	4845	7331	2415
Nevada	2922849	583289	19.96	230532	29334	16817	9546	4451	10927	5521	4977	1388	79356	22952
North Carolina	10155624	716899	7.06	309235	36635	16323	23205	13641	15342	7295	23405	8571	14188	3286
Ohio	11641879	250520	2.15	87406	46268	22851	13277	7157	10772	5120	44747	15644	11388	3627
Pennsylvania	12956593	592883	4.58	232430	88410	48055	36618	22561	28390	13980	35767	13499	16044	4839
Texas	27885195	7631379	27.37	3073590	170446	82010	219569	124500	58077	28742	86165	30812	83962	21420
Wisconsin	5778394	249830	4.32	97015	17390	8968	3980	2115	4359	2185	8233	3424	5264	1410

[20] Number of speakers with low English language proficiency

9.4. List of Competitive Races

Table 4: Competitive Races

District	R	D	Notes	Notes Jack	Demographics (Ethnicity)	DCCC	NRCC
CA-21	David G. Valadao - Incumbent		Dems lost by 1522 votes in 2020; one of 9 lost in 2020		73%Hispanic	Y	
CA-39	Young Kim - Incumbent		Gil Cisneros lost by 4109 in 2020; one of 9 lost in 2020		31.5% White	Y	
CA-48	Michelle Steele - Incumbent		Rohrbacher's old seat; Harley Rouda won in 2018 and lost in 2020		56.1% White	Y	
FL-26	**Carlos A. Giménez**				**79% Non White**	**Y**	
FL-27	**Maria Elvira Salazar**				**78% Non White**	**Y**	
IA-01	**Ashley Hinson**		**51%-48% (2020)**		**89.1% White**	**Y**	
IA-02	**Mariannette Miller-Meeks**		**49%-49%**		**86% White**	**Y**	
NY-22	Claudia Tenney		48%-48%		88% White	Y	
UT-04	Clarence Burgess Owens		47%-46%		87.3% White	Y	
AZ-01		**O'Halleran - Incumbent**	**51%-48%**		**49.5% White**		**Y**
CA-07		Ami Bera - Incumbent	56%-43%		54.5% White		Y
CA-10		Harder - Incumbent	55%-44%		43.9% White		Y
CA-16		Jim Costa - Incumbent	60%-40%		59.3% Hispanic		Y
CA-36		Raul Ruiz - Incumbent	60%-40%		48.3% Hispanic		Y
FL-13		**Crisr - Incumbent**	**53%-46%**		**72.3% White**		**Y**
GA-07		**Bourdeaux - Incumbent**	**51%-49%**		**46.6% White**		**Y**
IA-03		Axne - Incumbent	48%-47%		84.3% White		Y

IL-03	Marie Newman - Incumbent			58.7% White	Y
IL-14	Underwood - Incumbent	50%-49%		79.3% White	Y
IL-17	Bustos (retiring)	52%-48%		76.1% White	Y
ME-02	Golden - Incumbent	53%-47%		94.2% White	Y
MI-08	**Slotkin - Incumbent**	**51%-47%**		**82.6% White**	**Y**
MI-05	**Dan Kildee - Incumbent**	**54%-42%**		**74.1% White**	**Y**
MI-11	**Stevens - Incumbent**	**50%-48%**		**79.8% White**	**Y**
MN-02	Craig - Incumbent	48%-46%		82.5% White	Y
NJ-03	Kim - Incumbent	53%-45%		76% White	Y
NJ-05	Gottheimer - Incumbent	53%-45%		70.5% White	Y
NJ-07	Malinowski - Incumbent	50.6%-49.4%	Know Staffer	72.2% White	Y
NV-03	**Lee - Incumbent**	**49%-46%**		**57.5% White**	**Y**
NV-04	**Horsford - Incumbent**	**51%-46%**		**47% White**	**Y**
NY-04	Kathleen Rice - Incumbent	60%-40%		57.7% White	Y
NY-20	Paul Tonko - Incumbent	61%-38%		77.2% White	Y
NY-25	Joe Morelle - Incumbent	60%-40%		70.5% White	Y
NY-26	Brian Higgins - Incumbent	70%-28%		69.7% White	Y
OH-13	**Ryan (running for Senate)**			**81.3% White**	**Y**
OR-04	DeFazio - Incumbent	51%-46%		84.6% White	Y
PA-06	**Houlahan - Incumbent**	**56%-44%**		**73.2% White**	**Y**
PA-07	**Wild - Incumbent**	**51%-49%**		**69.6% White**	**Y**
PA-08	**Cartwright - Incumbent**	**52%-48%**		**79.5% White**	**Y**
PA-17	**Lamb - Incumbent**	**51%-49%**		**89% White**	**Y**
TX-07	**Fletcher - Incumbent**	**50%-47%**		**43.9% White**	**Y**
TX-15	**Gonzalez - Incumbent**	**50%-47%**		**81.8% Hispanic**	**Y**
TX-28	**Cuellar - Incumbent**	**58%-39%**		**78.5% Hispanic**	**Y**

TX-34		**Vela - Incumbent**	**55%-42%**	**83.8% Hispanic**	**Y**
VA-02		**Luria - Incumbent**	**51%-46%**	**67.21% White**	**Y**
VA-07		**Spanberger - Incumbent**	**51%-49%**	**65.5% White**	**Y**
WA-08		Schrier - Incumbent	52%-46%	74.2% White	Y
WI-03		**Kind - Incumbent**	**56%-44%**	**90% White**	**Y**
TX-24	**Elizabeth Ann Van Duyne**		**48%-47%**	**53.7% White**	
TX-23	**Tony Gonzales**		**50%-46%**	**68% Hispanic**	
AZ-06	**David Schweikert**		**52%-47%**	**72% White**	
NC-8	**Richard Lane Hudson Jr.**		**53%-46%**	**65% White**	
TX-21	**Chip Roy**		**52%-45**	**61% White**	
TX-22	**Troy Nehls**		**51%-44%**	**41% White**	
TX-10	**Michael McCaul**		**52%-45%**	**57% White**	
TX-31	**John Carter**		**53%-44%**	**59% White**	
VA-5	**Bob Good**		**52%-47**	**74% White**	
CO-3	**Lauren Boebert**		**51%-45% (National Media)**	**71% White**	
NY-11	Nicole Malliotakis		53%-46% (flipped to R, Jack knows both D's running in Primary, Mike Decillis, Brittany Ramos DeBarros)	61% White	
OH-4	**Jim Jordan**		**Jack knows Jeff Sites, opponent**		
FL10	**Val Demings**		**Jack knows CM for Alejandro Frost, opponent**	**38% White**	

9.5. Overview of Software

Table 5: Open Source Software used in IVF Server Installation

Use	Software Component	Functionality
Basic components		
Operating System	Ubuntu Linux	enables the server to operate
Container Software	Docker and Docker compose	enables containerization of the software stack with advantages for scaling up the software stack, backups, maintaining clean software dependencies and more
Server	Apache HTTP Server	enables server functionality of the server to serve www web pages (turns its into a web server)
Server Side Scripting	PHP	enabling Server side functionalities such as connecting to database and executing SQL queries and more
Server Side Scripting	Python	enabling Server side functionalities such as connecting to database and executing queries and more
Client side	HTML, JS, JQUERY	web page and interactivity
Library	wkthtml2pdf	support for custom print functionality from within web map
Geo Components		
Map Rendering Engine	MapServer	Rendering Maps with advanced cartography on eths server, provides standard OGC Services and API
MapCache	Map tile caching engine (an Apache2 Module)	enables the use of pre-rendered map tile images for faster display in 'slippy' maps
Map Viewer library	OpenLayers	web map functionality in the browser
Database	PostgreSQL SQL + PostGIS	storage and retrieval of (spatial) data, enabling GIS functionality in the database
Database query languages	SQL, psql, plppython, phpr for custom functions	enabling database queries, supporting optimal use of the database
Statistical Software	R, RScript	Creating histograms and other statistic graphs, spatial analysis functions and more
Geo - Libraries	GDAL/OGR	enabling reading writing of vector and raster data formats and much more
	GEOS	enabling 'lower level' on geo-functionality
	PROJ	enabling cartographic projections of data

Table 6: Comparison of competitors' applications, maps, data and functionalities with the IVP

Web Map / Tool Feature	Votebuilder/VAN	Catalyst	BlueVote	Nation Builder	Immigrant Voter Project
General					
price - cost per month	(based on population)				TBD
Mobile/Desktop	Mobile	D	M/D	M/D	D
storage space for custom data	None	Yes	N/A		yes
number of users	n/a				TBD
Voter Bio (age/sex/address/sex)	Yes	Yes	Yes	Yes	TBD
Map/List/Turf cutting feature	Yes	No	Yes	Yes	TBD
Map layers/search criteria					
Congressional districts	Yes	Yes	Yes	Yes	Yes
Census tracts	No	Yes	No	No	Yes
Polling Location	Yes	Yes	Yes	Yes	planned
County	Yes	Yes	Yes	Yes	Yes
Election Districts	Yes	Yes	Yes	Yes	Yes
Assembly Districts	Yes	Yes	Yes	Yes	No
ACS/Census data					
translated to voting precincts	No	Yes	Yes	No	Yes
Election data					
election results by precinct 2020	No	Yes	Yes	No	Yes
Voter History	Yes	Yes	Yes	No	No
outcome of votes on initiatives	No	No	No	No	No
Immigrant specific information					
Customization	Yes	Yes	No	No	Yes
Self Reported Demographics	Yes	Yes	Yes	No	No
Country of Origin	No	Yes	No	No	Yes
Ethnicity	Yes	Yes	Yes	No	Yes
additional custom data/model requested by campaign	No	Yes	No	Yes	Yes
search and query features					Yes
freely configurable					planned

9.6. Interactive Map – Examples of Data Layers and Functionality

Figure 5: Voter Turnout 2020 election - Congressional District 6, Texas

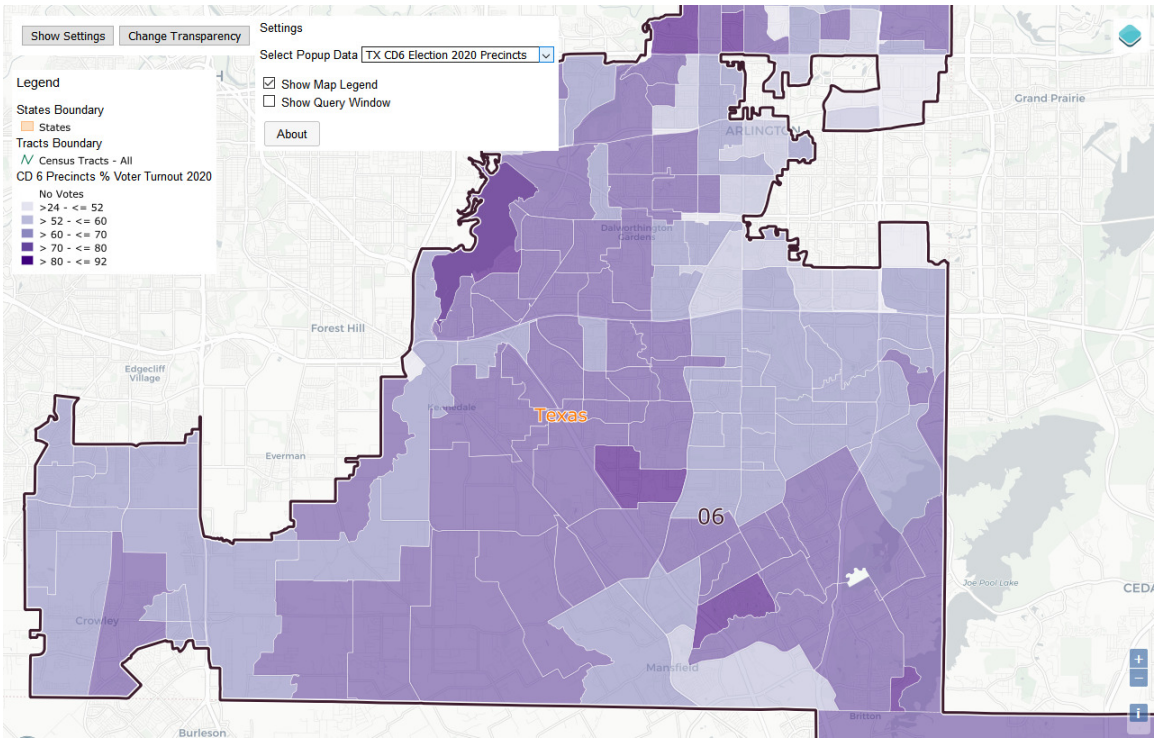


Figure 6: Voter Registration 2020 election - Congressional District 6, Texas

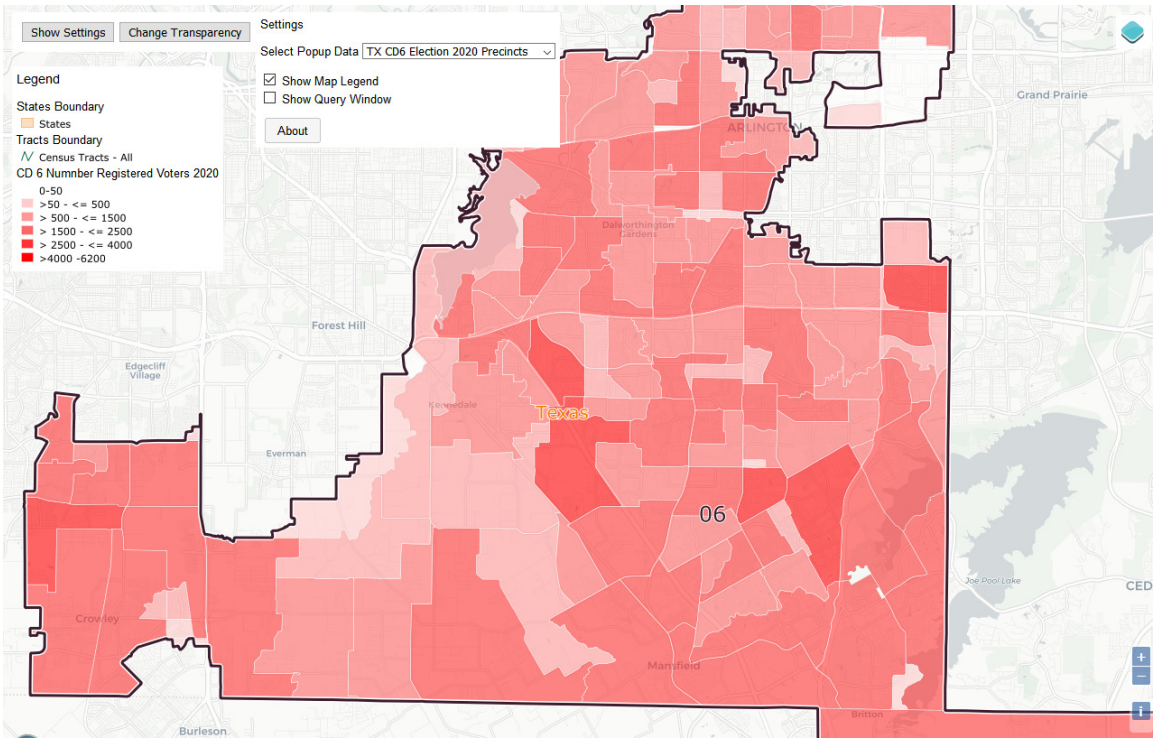


Figure 7: Houston, Texas - Census Tracts Percentage Native Speakers - Multicolor Matrix

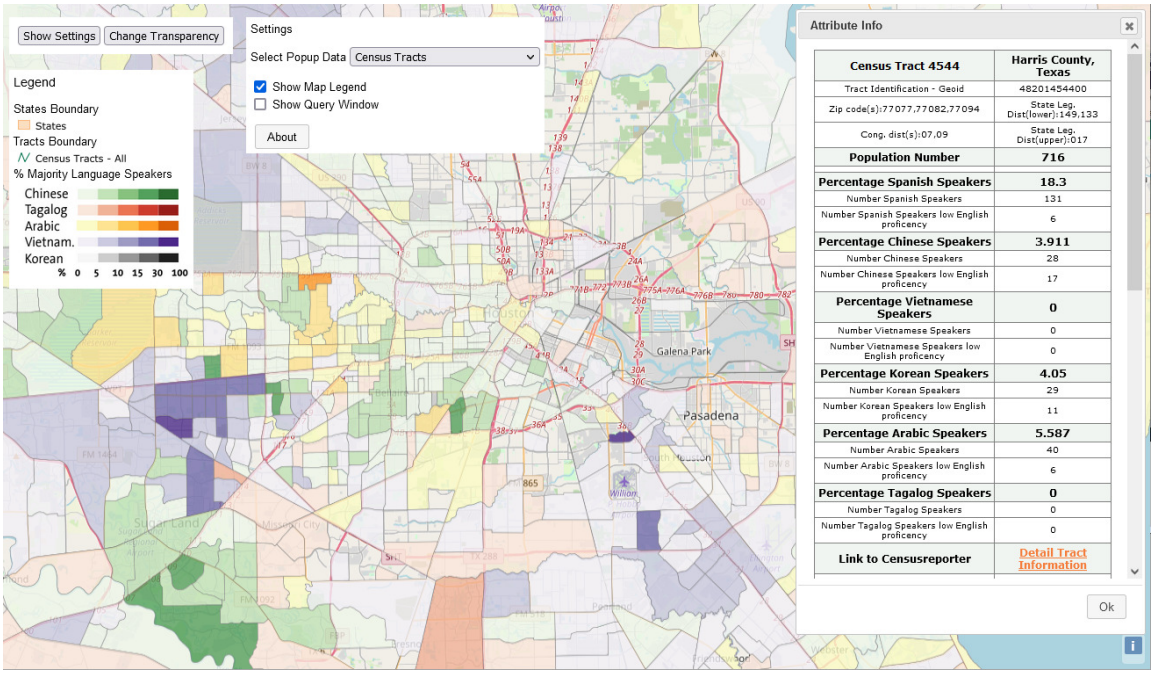


Figure 8: Detroit, Michigan - Query on Census Tracts with Percentage Arabic Speakers over 10 %