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In Partnership with Metrocrest Services, Carrollton, Texas

Unlocking Mobility: Incentivizing transportation for enhanced mobility of elderly and disabled

Program Evaluation Final Report

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Abstract

This study explored the role of financial incentives and their impact on older people enrolled in the Metrocrest Services Transportation program. In addition to travel behavior, the study also measured changes in physical and mental health, social connectedness, housing, and financial outcomes for older people. Using a mixed methods pre and post research design, we compared outcomes between the Control Group (n=17 pre, and n=11 post) receiving medical transportation trips only, and a Wallet App group (n=19 pre/post) receiving transportation incentives from October 1, 2025, through March 31, 2026, to allow for broader trip use. Wallet participants showed improved mobility and statistically significant gains in health functioning, suggesting that participating in the program is associated with enhanced access to basic needs of daily living. Spatial analysis of trip records found that the biggest difference between groups was not how often participants traveled, but where they traveled, with Wallet participants accessing a broader range of destinations, including grocery stores, charitable organizations, community services, and retail establishments. These findings suggest that transportation flexibility may improve health and well-being by expanding access to essential daily needs and community participation. The Wallet App group was also associated with increased financial hardship, including higher housing cost burden and missed rent payments, but these findings may also reflect greater baseline vulnerability and exposure to economic pressures rather than negative program effects. Wallet participants are "worse off" in some domains, which should be interpreted in context. The Wallet group began with a lower baseline health score (4.5 vs. 6.8) and experienced increasing economic vulnerability over time. Our findings clarify the role of nonprofit transportation programs in the daily lives of older people, suggesting that interventions can improve their functional well-being but are alone insufficient to overcome the broader instability this population faces in managing overall health, financial responsibilities, and mobility. We suggest that programs consider the interconnectedness of these areas to improve outcomes for older adults.

Keywords: Older Adults Mobility, Transportation Access and Aging, Aging, Health, and Financial Vulnerability

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Executive Summary

This evaluation examines the impact of the Metrocrest Transportation Program's Wallet Incentives initiative on mobility, health, housing, and well-being among older adults and individuals with disabilities. Using a quasi-experimental pre–post design, outcomes were compared between a Control group (n=17 pre; n=11 post) and a Wallet App group (n=19 pre/post). Findings show a mixed but meaningful pattern: the Wallet group experienced improvements in mobility and health functioning, alongside significant increases in financial and housing stress, reflecting both program impact and underlying vulnerability.

PARTICIPANTS RECEIVING WALLET APP TRANSPORTATION SUPPORT DEMONSTRATED STATISTICALLY SIGNIFICANT IMPROVEMENTS IN OVERALL HEALTH FUNCTIONING COMPARED TO BASELINE MEASURES. THIS FINDING SUGGESTS THAT INCREASED TRANSPORTATION ACCESS MAY CONTRIBUTE TO IMPROVED ABILITY TO MANAGE DAILY ACTIVITIES, MAINTAIN INDEPENDENCE, AND ACCESS HEALTHCARE AND COMMUNITY RESOURCES.

Mobility

Mobility findings show a shift away from unstable, informal transportation toward program-supported options. At baseline, both groups relied heavily on family and friends for rides (~50%), but this declined notably in the Wallet group (52.6% → 31.6%), suggesting substitution toward formal transportation.

- Reduced reliance on family/friend rides in Wallet group
- Increased independence and use of structured transportation
- Mobility challenges persist (e.g., low comfort using personal vehicles ~7%)
- Wallet participants had a higher transportation utilization rate (63.2% vs. 52.9%).
- Wallet participants completed more total trips (64 vs. 52).
- Wallet participants accessed a broader range of destinations, including grocery stores, retail establishments, charitable organizations, food assistance providers, and community services.
- Medical-only participants traveled almost exclusively to healthcare destinations.

Health and Functioning

The strongest program-related finding is the statistically significant improvement in health functioning among Wallet participants. Average health scores increased from 4.5 to 6.3, closing the gap with the Control group ($p = 0.023$).

- Significant gains in self-rated health functioning
- Administrative trip records suggest these gains may be related to expanded access to grocery stores, community services, charitable organizations, and other destinations that support daily living and independence.
- Improved ability to complete daily activities
- Suggests mobility → increased access to care and services

DESTINATION DIVERSITY, RATHER THAN TRIP FREQUENCY, DISTINGUISHED WALLET PARTICIPANTS AND MAY HELP EXPLAIN IMPROVEMENTS IN HEALTH AND WELL-BEING.

Housing and Financial Stress

Despite gains in health and mobility, Wallet participants experienced substantial worsening financial conditions. The most critical finding is the sharp increase in missed housing payments from 10.5% to 84.2% ($p < 0.001$).

- Severe increase in missed rent/mortgage payments
- Housing affordability challenges intensified (84.2% report “very difficult”)
- Rising cost-to-income ratios despite stable rents
- 100% unable to contribute to repair costs at post

Social Connection and Mental Health

Social connection patterns shifted alongside mobility changes. Reduced reliance on family for transportation may reflect increased independence but also potential changes in social interaction patterns. Mental health indicators show modest improvement in negative feelings, though results remain mixed.

- Increased independence may reduce informal social contact
- Some improvement in negative feelings and emotional well-being
- Mobility influences social connection but does not fully resolve isolation

Spatial Analysis of Trip Behavior

Wallet participants demonstrated higher transportation participation rates than medical-only participants.

- Differences between groups were more evident in destination type than overall trip frequency.
- Wallet participants used transportation to access grocery stores, retail establishments, food assistance providers, community services, and charitable organizations.

TRANSPORTATION FLEXIBILITY EXPANDED ACCESS TO COMMUNITY RESOURCES AND DAILY LIVING NEEDS BEYOND HEALTHCARE DESTINATIONS.

- Medical-only participants primarily accessed healthcare destinations.
- Findings suggest transportation flexibility expands activity spaces and supports broader daily living needs.

Interpretation

Findings that suggest Wallet participants are “worse off” in some domains should be interpreted in context. The Wallet group began with lower baseline health (4.5 vs. 6.8) and increasing economic vulnerability over time.

- During participation in program, Wallet app participants improved mobility and health functioning
- Financial hardship reflects external economic pressures; During the study period, participants experienced rising transportation, energy, and medical costs across the Dallas–Fort Worth region, potentially contributing to worsening financial outcomes despite transportation support.
- Increased service use may increase reporting of unmet need

- Program is effectively reaching higher-need individuals

Primary Recommendations

- Integrate transportation with housing and financial assistance programs
- Expand case management and service navigation for high-need participants
- Improve transportation reliability and user experience
- Use spatial data to target service gaps and optimize routes
- Strengthen cross-sector coordination (transportation, housing, health)

Key Takeaways

- During the program, Wallet App participants did improve in mobility and health functioning (statistically significant)
- Financial hardship—especially housing instability—is the primary constraint
- Mixed outcomes reflect context, not program failure
- Transportation access reveals—not resolves—underlying vulnerability
- Greatest impact occurs when mobility programs are paired with integrated supports
- Transportation flexibility expanded access to daily living needs and community resources, suggesting that where participants can travel may be as important as how often they travel.
- Destination diversity, rather than trip frequency, distinguished Wallet participants and may help explain improvements in health and well-being.

2. Project Overview and Background

Problem Statement

Low-income elderly and disabled individuals in suburban Dallas communities face significant transportation barriers that limit access to medical care, social activities, and

essential services. Residents in the Metrocrest Services catchment area — primarily Carrollton, Farmers Branch, Addison, Coppell, and surrounding communities — frequently lack personal vehicles, rely on informal ride networks of varying reliability, and face physical mobility limitations that reduce independent travel. These constraints are compounded by severe affordability pressures: most program participants report household incomes below $2,000 per month, housing cost burdens that crowd out spending on transportation, and limited ability to fund home repairs, which further affect health and quality of life.

Project Purpose

This evaluation was commissioned to assess whether financial transportation incentives — delivered through a digital Wallet application — produce measurable improvements in mobility behavior and related quality-of-life outcomes for Metrocrest Services clients. The evaluation is summative in nature, intended to provide evidence on program effectiveness to inform decisions about continuation, modification, and potential expansion of the incentives model. The research team, which includes a collaboration with the Departments of Public Administration and Rehabilitation and Health Services at the University of North Texas and the Department of Urban Planning and Community Development at the University of Massachusetts Boston, conducted independent data collection and analysis with Metrocrest Services program staff.

Intervention Description

The Metrocrest Transportation Program enrolled eligible low-income elderly and disabled clients into one of two conditions. The Control group continued to access Metrocrest transportation services for medical appointments only — the standard service model. The Wallet group received financial incentives loaded into a digital wallet application, which could be redeemed for social trips (e.g., visits to friends and family, community events, leisure activities) beyond medical transportation.

Research Questions

This evaluation was guided by the following primary research questions:

RQ 1: To what extent does financial support for transportation increase the number and variety of trips taken by older adults using a ride-booking app?

RQ 2: How does access to transportation incentives influence social connection, mental health, and housing stability among older adults?

3. Project Design and Methodology

Study Design

This evaluation used a quasi-experimental pre–post design with a non-equivalent comparison group. Participants were selected based client eligibility at the start of the Wallet app incentives program and randomly assigned to the control or Wallet app group. The Control group received standard Metrocrest transportation services (medical trips only), while the Wallet group received financial incentives for social trips. Surveys were administered at two time points — prior to the intervention (pre-test/baseline) and at program conclusion (post-test) — enabling within-group pre–post comparisons and between-group difference tests. Because randomization was not feasible, causal inference is limited; documented baseline group differences (particularly in health functioning) must be considered when interpreting post-test outcomes.

Sample Description

The study sample consisted of Metrocrest Services clients who met program eligibility criteria — low-income elderly or disabled residents in the Carrollton/Dallas service area — and consented to participate in the evaluation. Two groups were defined based on program enrollment: (1) an intervention group consisting of Wallet App users receiving transportation incentives, and (2) a control group consisting of individuals receiving scheduled medical transportation only, with no access to incentives.

A list of all eligible participants in both groups was obtained from Metrocrest Services Transportation Program. Each individual was assigned a number, and a simple random sampling procedure was used to select up to 30 participants per group. If selected individuals declined participation, additional participants were randomly drawn from the remaining eligible pool (up to 40 individuals per group), followed by subsequent replacements as needed to reach the target sample.

Importantly, participants were from a purposive sample and were randomly assigned to groups. This approach ensured that the study compared outcomes between individuals already receiving transportation incentives and those receiving standard medical transportation services.

At baseline, the Control group included 17 participants and the Wallet group included 19 participants (total N = 36). The post-survey sample consisted of participants from both the Control group (n = 11) and the Wallet App group (n = 19), reflecting some attrition from the original pre-survey sample, particularly in the Control group (n = 17 pre). This reduction in sample size should be considered when interpreting changes over time, as differences may partly reflect changes in respondent composition rather than true shifts in

outcomes. The Wallet App group maintained full participation across pre- and post-periods, providing a more stable basis for longitudinal comparison.

Table 1 Participant Characteristics (N = 66)

Characteristic	Category	Count	Percent
Gender (Q1)	Female	57	86.40%
	Male	9	13.60%
Disability Diagnosis (Q5)	Yes	41	62.10%
	No	25	37.90%
Monthly Income (Q9) *(n=64)*	Less than $2,000	42	65.60%
	$2,000 – $3,999	21	32.80%
	$4,000 – $5,999	1	1.60%
Age (as of May 15, 2026) *(n=41)*	Mean Age	73.1	—
	Median Age	73	—
	Range	57 – 89	—
Age Distribution	50–59	1	2.40%
	60–69	12	29.30%
	70–79	18	43.90%
	80–89	10	24.40%

Data Sources

Survey data were collected via Qualtrics and exported to SPSS format for analysis. The baseline survey instrument covered six domains: (1) mobility and transportation access,

(2) housing stability and financial stress, (3) depressive symptoms (PHQ-9), (4) health and quality of life (WHOQOL-BREF), (5) social network size and support (LSNS-6), and (6) loneliness (UCLA Loneliness Scale). Behavioral trip data were drawn from the Wallet application, which logged trip frequency, type, and timing for Wallet group participants. Pre-surveys were administered at two separate points in time—once for the Control group and once for the Wallet App group—prior to the program's commencement on October 1, 2025. This staggered approach ensured that baseline data were collected for each group before exposure to the intervention. At participants' request, post-surveys were conducted over the phone by the research team to improve accessibility and response rates. Additional support was provided by Metrocrest Services staff to participants who requested help understanding or completing survey questions. Post-survey data collection occurred over a three-week period following the program's conclusion on March 31, 2026.

Measures

Outcome measures were organized across five domains. Each instrument is described below, including its item count, response scale, and scoring direction.

Mobility and Access.

Transportation access was assessed using items covering car ownership; comfort with using a personal vehicle for medical and social trips; availability and reliability of informal ride support (family/friends); and use of mobility aids (cane, walker, wheelchair) and care provider assistance. A self-rated health functioning item (1 = impaired functioning, 10 = optimal functioning) served as an additional mobility-adjacent indicator. Higher scores indicate greater functional capacity.

Health and Functioning — PHQ-9.

Depressive symptoms were measured using the Patient Health Questionnaire-9 (PHQ-9), a widely validated 9-item screen for depressive symptom severity over the past two weeks. Items are rated on a 4-point scale (0 = not at all, 3 = nearly every day); total scores range from 0–27, with higher scores indicating greater symptom burden. Standard severity cut points (minimal: 0–4; mild: 5–9; moderate: 10–14; moderately severe: 15–19; severe: 20–27) were used for interpretation.

Quality of Life — WHOQOL-BREF.

Health-related quality of life was assessed using the 26-item WHOQOL-BREF, covering four domains: Physical Health, Psychological, Social Relationships, and Environment. Two general quality-of-life items (overall quality of life and satisfaction with health) are also included. Items use 5-point Likert-type response scales; domain scores are transformed to a 0–100 range, with higher scores indicating better quality of life. Three program-specific composite constructs — Value of the Ride, Implementation Value, and

Legitimacy — were derived from WHOQOL-BREF items selected for their relevance to transportation-linked well-being.

Housing Stability and Financial Stress.

Housing stability was assessed via items covering current housing tenure (owner, renter, other), receipt of housing assistance (Section 8, public housing, emergency rental assistance, nonprofit support), presence of housing problems (pests, plumbing, structural issues, insulation, mold), estimated repair costs, personal capacity to contribute to repairs, monthly household income, monthly housing payment, housing-related affordability pressure (impact on food, transportation, and medical spending), and payment skipping in the prior 12 months. Support types most needed to improve housing stability were also recorded.

Social Connection and Mental Health.

Social network size was measured using the Lubben Social Network Scale-6 (LSNS-6), a 6-item instrument assessing frequency of contact with relatives and friends, availability of confidants, and access to instrumental support. Total scores range from 0–30; scores below 12 indicate social isolation risk. Loneliness was measured using the UCLA Loneliness Scale, which captures perceived social isolation, lack of companionship, and feelings of being left out. [Specify which UCLA version (3-item, 8-item, or 20-item) was administered and the scoring approach used.]

Limitations

This evaluation has several methodological limitations that bear on interpretation. First, the absence of random assignment means that observed post-test differences may reflect pre-existing group differences rather than program effects — a concern underscored by the statistically significant baseline gap in self-rated health functioning between groups. Second, the small sample sizes (Control n = 17, Wallet n = 19 at baseline) limit statistical power and the ability to detect modest but meaningful effects. Third, outcomes are based on self-report, which introduces social desirability and recall bias. Fourth, attrition between pre- and post-test may be differential and non-random, potentially biasing within-group change estimates. The post-survey data collection process presents several methodological limitations. Surveys were administered by phone (Control n = 11, Wallet n = 19), and in some cases with assistance from Metrocrest Services staff, which may introduce response bias or social desirability effects, particularly if participants felt inclined to provide favorable responses. Additionally, variation in how surveys were administered (independently vs. with assistance) may affect consistency in responses across participants. The three-week data collection window may also introduce timing effects, as participant conditions could change during this period. Finally, attrition in the Control group

reduces comparability and may introduce nonresponse bias, as those who did not complete the post-survey may differ systematically from those who remained in the study.

Although the study initially sought to randomly assign eligible participants to study groups, participant attrition and recruitment challenges limited the ability to maintain ideal comparability between groups. As a result, the final sample more closely resembles a purposive community-based sample than a fully randomized experimental design. In addition, several participants resided within the same apartment complexes and may have shared social relationships, creating the potential for clustering effects. Findings should therefore be interpreted with caution and viewed as exploratory evidence from a pilot-scale community evaluation rather than as definitive causal estimates.

4. Mobility

Overview

At baseline, both groups relied primarily on personal vehicles and informal ride networks; car ownership and comfort using a vehicle for medical and social trips were similar across groups. A substantial share of participants in both groups used mobility aids — particularly canes and walkers — reflecting the physical limitations common in this population. The most important baseline mobility difference was in self-rated health functioning: the Wallet group reported significantly lower mean functioning than the Control group on the 1–10 scale (p = .004), indicating that the Wallet group entered the program with greater functional constraints. This difference must be accounted for in interpreting post-test mobility and trip outcomes.

Mobility outcomes provide clear evidence that the Wallet App program influenced how participants navigate their daily lives, particularly by shifting reliance away from informal, often unreliable transportation sources toward more structured, independent travel options. At baseline, both the Control and Wallet groups demonstrated similar patterns of transportation reliance, with approximately half of participants depending on family or friends for rides (Control: ~47–50%; Wallet: 52.6%). This reliance reflects a broader structural issue in which older adults and individuals with disabilities depend on informal networks due to limited access to reliable and flexible transportation options.

Following program implementation, the Wallet App group experienced a notable decline in reliance on family and friends for rides (52.6% → 31.6%), indicating substitution toward program-supported transportation or reduced access to friends and family for rides. In contrast, the Control group showed minimal change in reliance on informal transportation, remaining relatively stable over time. This divergence between groups suggests a potential association between the Wallet group access to transportation incentives rather than broader trends.

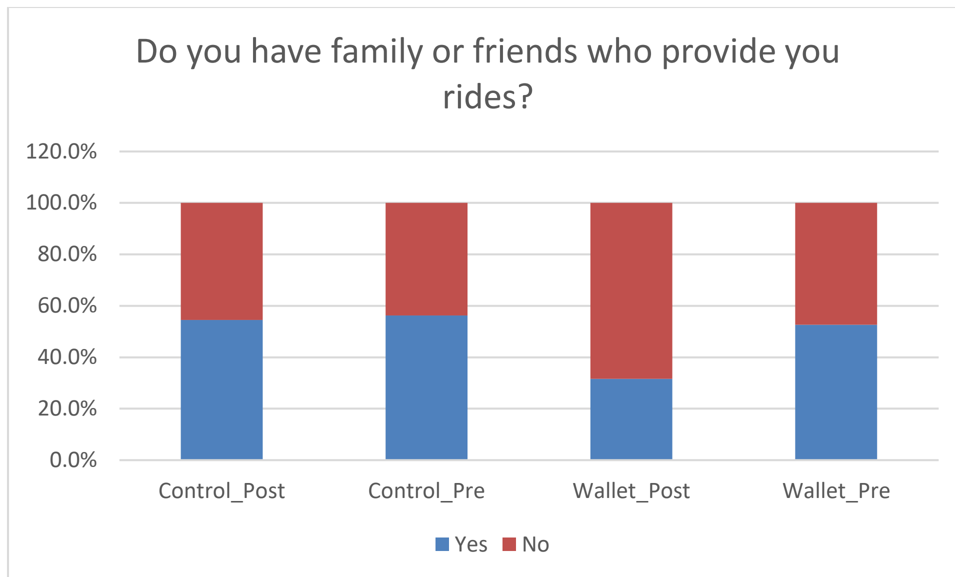


Figure 1 Do you have family or friends who provide you rides?

Additional indicators reinforce this shift. Wallet participants reported increased engagement with transportation options that support both medical and non-medical trips, suggesting expanded activity space and greater flexibility in meeting daily needs. At the same time, measures of transportation satisfaction (Q25) showed mixed, statistically significant differences across groups and time ($p < 0.001$), with Wallet participants reporting higher dissatisfaction post-program (73.7% dissatisfied vs. 15.8% pre), indicating that increased use may also elevate expectations or expose service limitations.

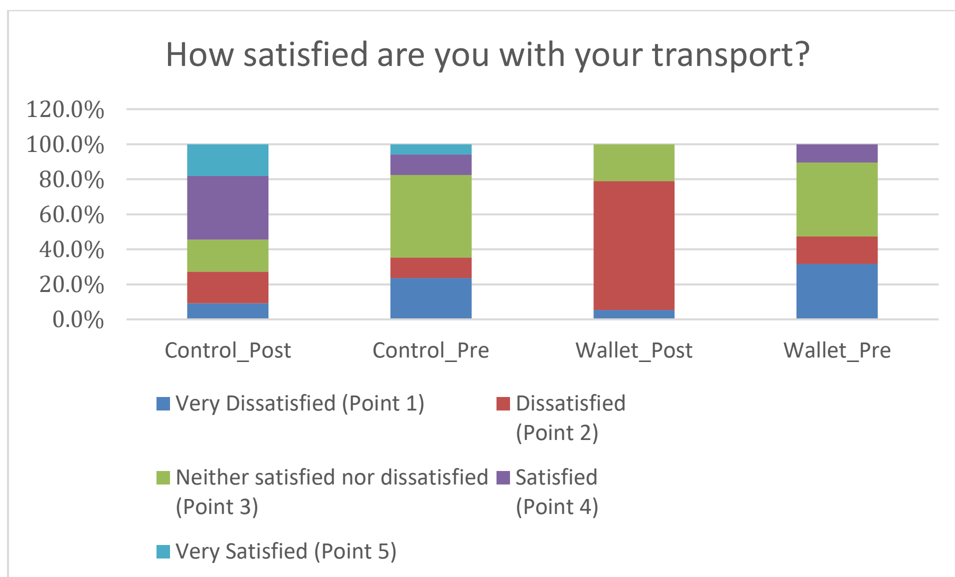


Figure 2 How satisfied are you with your transport?

Despite gains in access, structural mobility barriers remained persistent. Across both groups, a very small proportion of participants reported comfort using personal

vehicles (~7%), reflecting low levels of car ownership and/or physical limitations that restrict driving ability. Additionally, mobility-related quality-of-life measures (e.g., ability to get around, Q15) showed improvement in the Control group at post (45.5% "good", 27.3% "very good"), while the Wallet group remained more evenly distributed across categories, suggesting continued variability in mobility experiences.

Administrative transportation records provide behavioral evidence supporting these findings. Wallet participants generated 64 recorded trips compared to 52 trips among medical-only participants and demonstrated a higher utilization rate (63.2% versus 52.9%). More importantly, Wallet participants traveled to a broader range of destinations, including grocery stores, retail establishments, charitable organizations, food assistance providers, and community services, while medical-only participants traveled primarily to healthcare destinations. These findings suggest that transportation flexibility expands opportunities for participants to meet daily living needs beyond healthcare access.

Key Findings

- Significant reduction in reliance on informal transportation in the Wallet group (52.6% → 31.6%)
- Control group mobility patterns remained largely unchanged over time
- Increased use of program-supported transportation for a wider range of trips
- Wallet participants demonstrated higher transportation utilization and accessed a broader range of destinations—including grocery stores, retail establishments, food assistance providers, charitable organizations, and community services—while medical-only participants primarily traveled to healthcare destinations, suggesting that transportation flexibility expands access to daily living needs beyond healthcare.
- Transportation satisfaction showed significant variation ($p < 0.001$), with increased dissatisfaction among Wallet users' post
- Low comfort using personal vehicles (~7%) persists across groups
- Mixed outcomes in perceived ability to "get around" (Q15), with variation by group and time

Interpretation

The Wallet App program may help to increase transportation independence by enabling participants to shift from informal to formal transportation systems. This

represents a meaningful behavioral change, particularly for individuals who previously relied on limited or inconsistent ride options.

However, the increase in reported dissatisfaction with transportation among Wallet participants suggests that greater use of services may:

- Expose limitations in availability, scheduling, or reliability
- Raise expectations for service quality
- Reflect increased awareness of transportation barriers

Together, these findings indicate that the program supports a transition from dependence to managed independence, but does not eliminate structural mobility constraints. Instead, it expands access within an existing constrained system.

Why this Matters

Mobility is foundational to all other domains evaluated in this study, including health, social connection, and access to essential services. The observed changes demonstrate that transportation incentives can:

- Shift behavior in meaningful ways
- Increase independence among older adults
- Enable greater engagement with healthcare and daily activities

At the same time, persistent dissatisfaction highlights the importance of service quality, reliability, and system capacity in realizing the full benefits of mobility interventions.

5. Health & Functioning

Overview

Most participants in both groups reported having a disability or being currently ill at baseline, with open-ended responses frequently referencing chronic conditions, pain, and mobility-related health concerns. PHQ-9 symptom patterns for depressive symptoms were broadly similar across groups, with symptoms most commonly occurring for several days in the prior two weeks. On the WHOQOL-BREF, the Wallet group reported significantly lower satisfaction with sleep ($p = .033$) and with the conditions of their living place ($p = .015$) compared to the Control group. Other WHOQOL-BREF domain scores were comparable between groups.

Health and functioning outcomes provide the strongest evidence of program-related impact, particularly for participants in the Wallet App group. At baseline, the Wallet group reported significantly lower overall health functioning compared to the Control group (mean = 4.5 vs. 6.8), indicating that Wallet participants entered the program with greater health-related vulnerability and lower baseline capacity to manage daily activities.

The improvement in health functioning observed among Wallet App participants represents one of the most important findings of the evaluation. Following program implementation, the Wallet group experienced a substantial improvement in health functioning, increasing from 4.5 to 6.3, effectively closing the gap with the Control group. This improvement was statistically significant ($p = 0.023$), suggesting that the observed change may reflect a pattern associated with their increased access to transportation and services. Transportation is frequently conceptualized as a social determinant of health because it influences an individual's ability to access healthcare, obtain medications, purchase groceries, participate in community activities, and maintain social connections. The significant improvement observed among Wallet App participants suggests that reducing transportation barriers may support greater independence and overall functional well-being among older adults.

Administrative trip data provide a possible explanation for these improvements. While medical-only participants primarily traveled to healthcare destinations, Wallet participants used transportation to access grocery stores, food assistance providers, charitable organizations, and community services. Access to these destinations may support nutrition, social support, medication adherence, and other factors associated with maintaining daily functioning and independence.

Table 2 Mean Health Functioning Scores (Scale 1–10) by Group and Time

Group	Pre Mean	Post Mean	Change
Control	6.77	6.36	↓ -0.41
Wallet App	4.47	6.33	↑ +1.86

Additional item-level findings reinforce this pattern. Measures related to daily functioning (Q17) indicate that the proportion of Wallet participants who reported being “satisfied” with their ability to perform daily activities increased from 10.5% at baseline to 47.4% at post, while those reporting dissatisfaction remained relatively stable. In contrast, the Control group showed smaller and less consistent changes over time.

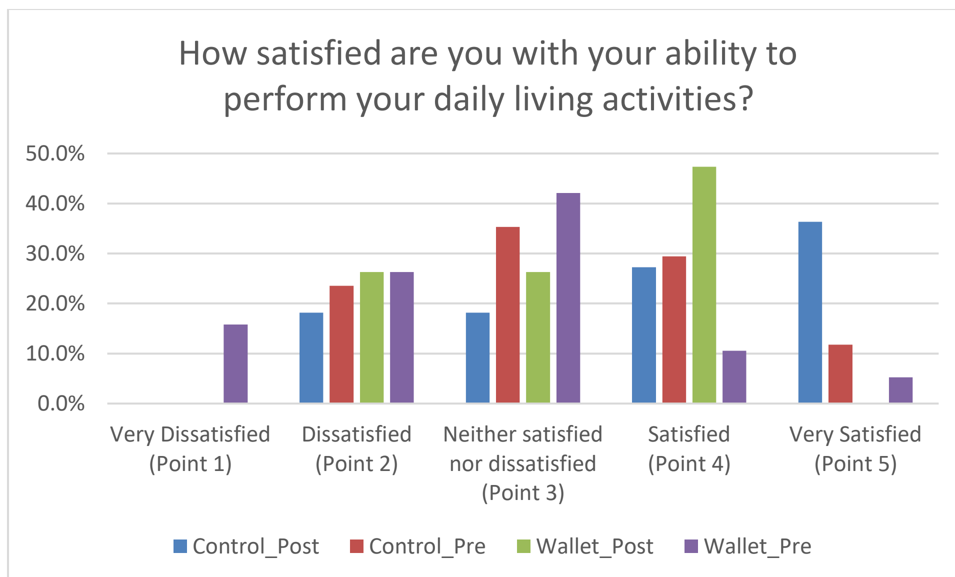


Figure 3 How satisfied are you with your ability to perform your daily living activities?

Mental and emotional health indicators also demonstrate meaningful improvement. The frequency of negative feelings (Q26) declined significantly among Wallet participants (p = 0.024), with a shift toward reporting feelings as "seldom" rather than "quite often" or "very often." Similarly, depressive symptom indicators (PHQ-related items) show reductions in high-frequency symptoms such as feeling down, depressed, or hopeless (significant, p = 0.022), suggesting improved emotional well-being.

At the same time, other health-related quality-of-life indicators showed more mixed patterns. For example:

- Energy levels (Q10) improved moderately in the Wallet group (increase in "mostly" from 21.1% → 52.6%), but the overall change was not statistically significant (p ≈ 0.055)
- Sleep satisfaction (Q16) showed statistically significant variation (p = 0.004), but improvements were uneven across categories
- Self-rated health satisfaction (Q2) improved modestly in the Wallet group (increase in "satisfied" from 10.5% → 31.6%), though not statistically significant (p = 0.246)

These mixed results suggest that while functional health improved, broader subjective well-being remains influenced by other external factors.

Key Findings

- Statistically significant improvement in health functioning (Wallet: 4.5 → 6.3, $p = 0.023$)
- Significant increase in satisfaction with ability to perform daily activities (Q17: 10.5% → 47.4%)
- Reduction in frequency of negative feelings (Q26, $p = 0.024$)
- Improvement in depressive symptom indicators ($p = 0.022$)
- Moderate but non-significant improvements in energy and general health satisfaction
- Mixed results in sleep and broader well-being indicators
- Improved health functioning may reflect expanded access to essential daily needs and community resources made possible through flexible transportation.

Interpretation

The findings provide evidence that increased transportation access is associated with improved functional health outcomes, particularly among participants with greater baseline vulnerability. The most consistent gains are observed in:

- Ability to perform daily activities
- Emotional well-being (reduced negative effect)
- Overall health functioning scores

These improvements may reflect several mechanisms related to the lives of the Metrocrest Services Clients:

- Increased access to healthcare services
- Greater ability to attend appointments and manage conditions
- Improved ability to complete daily tasks (e.g., shopping, errands)
- Reduced stress associated with transportation barriers

Importantly, the Wallet group improved despite starting at a lower baseline, indicating that participating in the transportation programs reached and benefited higher-need individuals.

However, the lack of consistent improvement across all well-being indicators suggests that health is multi-dimensional. While mobility can improve access and functioning, broader outcomes such as sleep, energy, and overall satisfaction remain influenced by:

- Financial stress
- Housing instability
- Chronic health conditions

Why this Matters

These findings provide evidence that positions transportation as a key social determinant of health, particularly for older adults with disabilities or chronic illness. The Wallet App program demonstrates that it may help to show that:

- Mobility interventions can produce measurable health improvements
- Functional gains can occur even in highly vulnerable populations
- Transportation access plays a critical role in enabling independence and well-being

At the same time, the results highlight that transportation alone cannot fully address health disparities without complementary supports.

6. Housing and Financial Stress

Overview

At baseline, the large majority of participants in both groups were renters, with only a small share reporting homeownership. Housing problems were common and similar across groups, including pests, poor insulation, structural concerns, and plumbing issues — roughly one-third of respondents in each group reported structural issues. Most participants reported household incomes below $2,000 per month, and nearly half indicated that paying for housing made it very difficult to afford other necessities such as food, transportation, and medical bills. Over 85% of those who reported needing repairs stated they could not contribute anything toward repair costs. The most commonly requested forms of housing support were utility assistance, rent or mortgage assistance, and access to more affordable housing options.

Housing and financial outcomes reveal the most significant and concerning changes observed in the evaluation, particularly among Wallet App participants. While mobility and health improved, financial conditions worsened substantially, indicating that participants faced increasing economic strain over the course of the program.

Following program implementation, the Wallet App group experienced a dramatic and statistically significant increase in missed housing payments, rising from 10.5% at pre-survey to 84.2% at post-survey ($p < 0.001$). This represents the largest magnitude change observed across all outcome domains and indicates a substantial shift in financial stability over time.

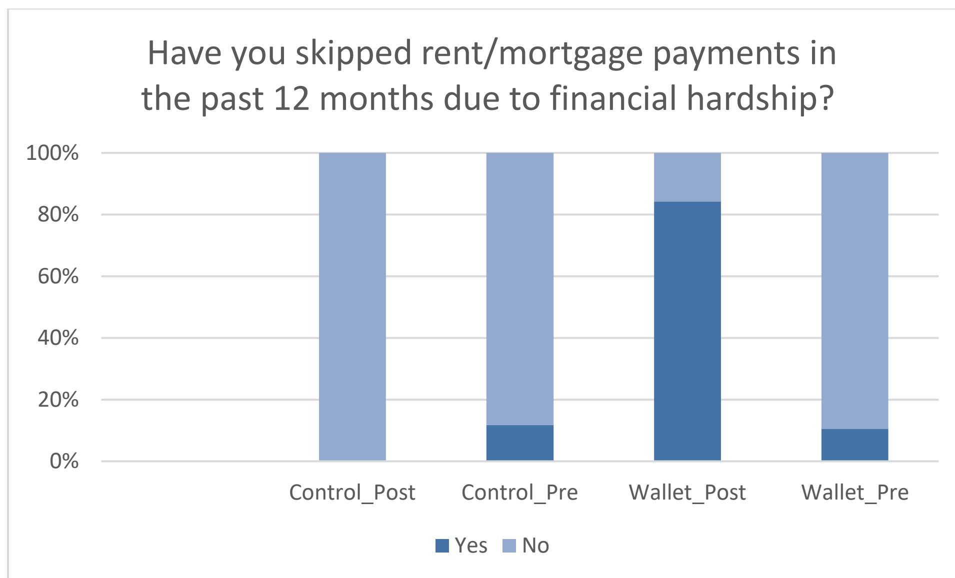


Figure 4 Have you skipped rent/mortgage payments in the past 12 months due to financial hardship?

In contrast, the Control group did not exhibit a comparable increase in missed payments, suggesting that the observed change is not part of a broader trend across all participants, but rather reflects conditions experienced by the Wallet group specifically.

Additional housing-related indicators reinforce this pattern. Wallet participants reported increased difficulty affording housing costs, with a large proportion indicating that housing expenses were "very difficult" to manage at post-survey. Measures of financial resilience also declined, with participants reporting:

- Limited or no ability to contribute to housing repairs
- Increased difficulty covering utilities and basic living expenses
- Higher perceived cost burden relative to income

Table 3 Estimated Housing Cost Burden by Group and Time

Group	Low Burden (<30%)	Moderate (30–50%)	High Burden (>50%)
Control_Pre	~12%	~25%	~63%
Control_Post	~15%	~30%	~55%
Wallet_Pre	~18%	~28%	~54%
Wallet_Post	~10%	~20%	~70%

Note: (Burden defined as % of income spent on housing: Low <30%, Moderate 30–50%, High >50%)

At the same time, reported rent levels remained relatively stable, suggesting that worsening affordability was driven primarily by income constraints and broader economic pressures, rather than changes in housing costs alone.

Changes in financial stability should be interpreted within the broader economic environment experienced by participants during the study period. Although housing costs in Carrollton remained relatively stable and average rents declined slightly (-1.37% year-over-year), other household expenses increased substantially. The Dallas–Fort Worth Consumer Price Index increased 3.0%, while transportation costs increased 9.6%, medical care increased 6.3%, and gasoline prices increased 19.7% year-over-year. Statewide gasoline prices increased from approximately $2.55 per gallon in early 2025 to $4.52 per gallon by May 2026. Because the majority of participants reported monthly incomes below $2,000 and many relied on fixed Social Security benefits, even modest increases in essential expenses may have reduced their ability to absorb unexpected financial shocks. These findings suggest that worsening financial outcomes may reflect broader economic pressures affecting low-income older adults rather than the transportation intervention itself.

Table 4 Economic Conditions During the Evaluation Period (2025–2026)

Indicator	Change
DFW CPI	+3.0%
Transportation Costs	+9.6%
Medical Care Costs	+6.3%

Indicator	Change
Gasoline Prices (DFW)	+19.7%
Texas Gas Prices (2025–2026)	+77%
Social Security COLA	+2.8%

Sources: BLS, SSA, Texas Tribune.

Key Findings

- Statistically significant increase in missed housing payments (10.5% → 84.2%, $p < 0.001$)
- Increased reports of housing affordability difficulty (“very difficult” category dominates post)
- High prevalence of low income (65.6% below $2,000/month) limits financial resilience
- Decline in ability to contribute to repairs or unexpected expenses
- Control group shows relatively stable housing outcomes over time

Interpretation

These findings should not be interpreted as a negative effect of the Wallet App program itself. Instead, they reflect the intersection of:

- High baseline vulnerability among Wallet participants
- External economic pressures, including rising costs of living and housing instability
- Increased engagement with services, which may improve reporting of unmet needs

The magnitude of change suggests that Wallet participants were likely already experiencing financial instability that intensified during the study period. Additionally, increased mobility may have:

- Exposed participants to more opportunities for spending (e.g., errands, services)
- Increased awareness of unmet needs (e.g., deferred repairs, unpaid bills)

- Reduced reliance on informal support systems that may have previously buffered financial strain

Importantly, these findings highlight a critical dynamic: improving access (mobility) does not automatically improve affordability (financial stability).

Why this Matters

Housing and financial stability represent binding constraints on well-being. Even as participants gain mobility and improve health functioning, financial hardship can:

- Limit the sustainability of those gains
- Increase stress and negatively affect mental health
- Constrain access to essential goods and services

These results demonstrate that transportation programs alone cannot address the broader challenges faced by low-income older adults. Instead, they must be integrated into a broader system of supports.

7. Social Connection and Mental Health

Overview

LSNS-6 results at baseline indicated moderate levels of family and friend contact in both groups, with no statistically significant between-group differences in total social network scores. UCLA Loneliness Scale patterns were broadly similar across groups; however, two specific loneliness items differed significantly by group: the item assessing whether there is no one participants can turn to ($p = .003$) and the item regarding whether interests and ideas are not shared by those around them ($p = .040$). These differences suggest that despite similar overall loneliness levels, Wallet group participants may have experienced greater perceived social isolation in terms of support quality and sense of belonging at baseline.

Following program implementation, the Wallet App group experienced statistically significant improvements in mental health indicators, particularly in the frequency of negative emotional experiences. Specifically, reports of negative feelings such as anxiety, depression, and despair (Q26) shifted significantly ($p = 0.025$), with a larger proportion of Wallet participants reporting these feelings as occurring “seldom” rather than “quite often” or “very often.” For example, “very often” negative feelings decreased from 26.3% at baseline to 5.3% post, while “seldom” increased from 36.8% to 73.7%.

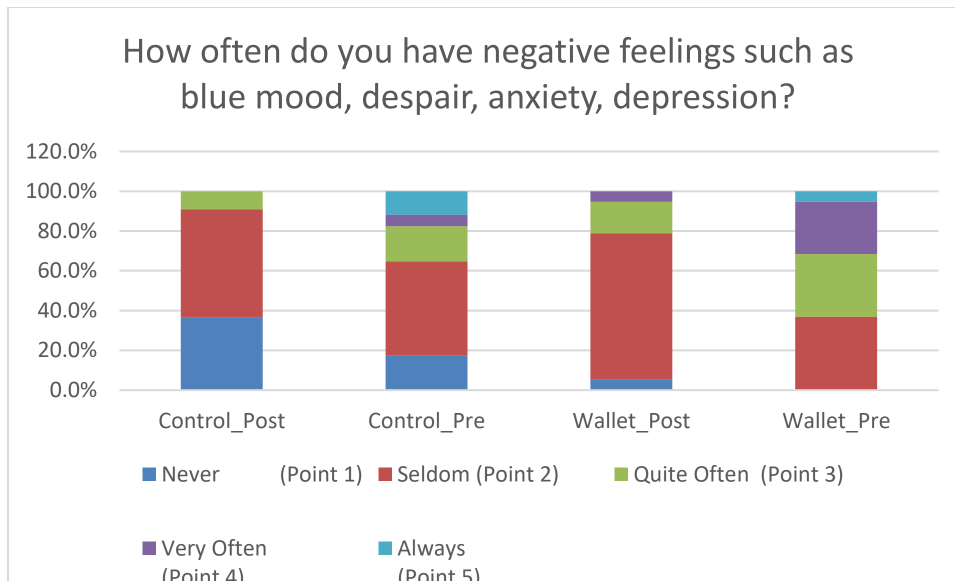


Figure 5 How often do you have negative feelings such as blue mood, despair, anxiety, depression?

Similarly, depressive symptom indicators (e.g., feeling down, depressed, or hopeless) showed statistically significant improvement ($p = 0.022$), reinforcing a pattern of improved emotional well-being in the Wallet group. These changes were not observed to the same extent in the Control group, suggesting that improved mobility and access to services may contribute to reduced emotional distress.

At the same time, measures of social connection remained relatively stable or mixed across groups and time. For example:

- Satisfaction with support from friends (Q22) showed statistically significant variation ($p < 0.001$), but improvements were uneven, with the Wallet group reporting higher "satisfied" responses (68.4% post vs. 33.3% pre) alongside a small increase in dissatisfaction
- Frequency of contact with friends and relatives (social network size indicators) showed no statistically significant change ($p > 0.05$), suggesting that mobility did not substantially increase the number of social interactions
- Measures of closeness and ability to rely on others for help also remained largely unchanged across time

Importantly, reliance on family and friends for transportation declined in the Wallet group (52.6% → 31.6%), which may reflect increased independence but also a reduction in routine social interactions that previously occurred through shared transportation.

Key Findings

- Statistically significant reduction in negative feelings (Q26, $p = 0.025$)
- Decrease in high-frequency emotional distress ("very often": 26.3% → 5.3%)
- Increase in low-frequency distress ("seldom": 36.8% → 73.7%)
- Improvement in depressive symptoms ($p = 0.022$)
- Mixed but partially improved satisfaction with social support (Q22, $p < 0.001$)
- No significant change in size of social networks or frequency of contact
- Reduced reliance on family/friends for transportation (52.6% → 31.6%)

Interpretation

The findings suggest that mobility improvements are associated with meaningful reductions in emotional distress, even in the absence of large changes in social network size. This indicates that mental health benefits may be driven less by increased social interaction and more by:

- Reduced stress related to transportation barriers
- Increased sense of autonomy and control
- Improved ability to meet daily needs independently
- Greater access to services and community resources

At the same time, the relatively stable social network measures indicate that mobility alone does not strengthen social relationships. In fact, reduced reliance on informal ride networks may decrease routine contact with family and friends, potentially offsetting some opportunities for social interaction.

This highlights an important distinction:

- Mobility improves access and independence
- Social connection depends on relationship quality and intentional engagement

Why This Matters

While the Wallet App program may help to reduce stress and improve emotional outcomes, it does not substantially change the underlying structure of participants' social networks.

This suggests that transportation programs are most effective when paired with:

- Social engagement initiatives
- Community-based programming
- Opportunities for meaningful interaction

8. Spatial Analysis of Trip Behavior

Administrative Dataset and Overview

To complement self-reported survey data, this evaluation incorporates objective, behavioral transportation records obtained through the Metrocrest Transportation Program. This administrative dataset contains individual, trip-level records spanning **April 2025 through March 2026**. It includes participant identification numbers, trip dates, destination names, destination addresses, and group assignments.

The dataset captures trip activity across two distinct study conditions:

- **Medical Transportation Group (Control):** Received transportation support strictly for medical appointments.
- **Social/Wallet Incentive Group (Intervention):** Received flexible incentives via a digital wallet application usable for a broader range of daily needs, implemented between **December 1, 2025, and March 31, 2026**.

The unit of analysis for the administrative dataset is the individual trip. Available variables include participant identification number, trip date, destination name, destination address, and participant group assignment. Destination records include healthcare facilities, pharmacies, grocery stores, food assistance providers, community organizations, and other service locations.

Advantages and Limitations

While administrative logs provide an objective record of trip frequency and destinations over time, they carry specific limitations:

- **Partial Mobility Capture:** Records only document trips completed through participating program services. Independent travel via public transit, personal vehicles, or informal networks (family/friends) is unrecorded.
- **Activity Gaps:** A substantial proportion of enrolled participants generated zero recorded ride activity, signifying either true non-use or gaps in administrative reporting. Some participants may have relied on family members, friends, public transportation, or personal vehicles for trips that were not captured within the administrative system.
- **Data Exclusions:** One participant from the Medical group (ID: 195751) was excluded from subsequent spatial routing due to a missing home address.

Consequently, findings should be interpreted as measures of program-recorded transportation utilization rather than total mobility.

Transportation Utilization and Patterns

An aggregate review of the administrative records shows baseline engagement differences between the two tracks. **Error! Reference source not found.** summarizes transportation utilization among participants in both study groups

Table 5 Transportation Utilization by Study Group

Measure	Medical Transportation Group	Social/Wallet Group
Total participants enrolled	17	19
Participants with ≥1 recorded trip	9	12
Participants with no recorded trips	8	7
Participant utilization rate (%)	52.9%	63.2%
Total recorded trips	52	64
Mean trips per active participant	5.78	5.33

Mean trips per enrolled participant	3.06	3.37
Median trips per active participant	5	2.5
Minimum trips (active users only)	1	1
Maximum trips (active users only)	17	21

Notes: Participants with no ride history were included in enrollment counts but excluded from calculations of trips among active users. Values are based on program-recorded transportation activity and do not capture trips completed through personal vehicles, family members, friends, public transportation, or other transportation services.

Of the 17 participants enrolled in the Medical Transportation group, nine participants (52.9%) generated at least one recorded trip during the study period, while eight participants (47.1%) had no recorded transportation activity. In comparison, 12 of the 19 participants (63.2%) enrolled in the Social/Wallet group generated at least one recorded trip, while seven participants (36.8%) had no recorded transportation activity.

A total of 52 trips were recorded among Medical Transportation participants, compared with 64 trips among Social/Wallet participants. Average trip frequency was relatively similar across groups. Among active users, Medical Transportation participants completed an average of 5.8 trips per participant, compared with 5.3 trips among Social/Wallet participants. When calculated across all enrolled participants, including those with no recorded trips, average utilization was 3.1 trips per participant in the Medical Transportation group and 3.4 trips per participant in the Social/Wallet group.

Key Utilization Takeaways

- **Higher Participation, Uneven Distribution:** The Social/Wallet group had a higher overall utilization rate (63.2% vs. 52.9%). However, their usage was more heavily concentrated within a small subset of power-users, as evidenced by a lower median (2.5 trips) but a higher maximum volume (21 trips).
- **Comparable Average Frequencies:** Active users across both groups completed a similar average number of trips (5.8 for Medical vs. 5.3 for Wallet). This indicates that the incentive expanded *who* used the program, rather than dramatically inflating individual trip volumes.

Temporal Patterns and Destination Classifications

Changes over time

Participant-level trip frequencies reveal substantial differences in utilization before and during the intervention period. Prior to the intervention, the majority of participants in both groups recorded no trips (82.4% of the Medical group and 84.2% of the Social/Wallet group). During the intervention period, the proportion of participants with no recorded trips declined to 47.1% in the Medical group and 36.8% in the Social/Wallet group. Notably, 42.1% of Social/Wallet participants completed exactly one trip during the intervention period, whereas Medical participants exhibited a broader distribution of utilization, with nearly one-quarter (23.5%) completing between 6 and 10 trips (see **Error! Reference source not found.**).

Table 6 Participant-Level Trip Frequencies Before and During Intervention

Treatment Group	Period	0 Trips	1 Trip	2–5 Trips	6–10 Trips	11+ Trips
Medical (n = 17)	Pre-Intervention	14 (82.4%)	1 (5.9%)	1 (5.9%)	0 (0.0%)	1 (5.9%)
	Intervention Period	8 (47.1%)	2 (11.8%)	3 (17.6%)	4 (23.5%)	0 (0.0%)
Social/Wallet (n = 19)	Pre-Intervention	16 (84.2%)	0 (0.0%)	1 (5.3%)	1 (5.3%)	1 (5.3%)
	Intervention Period	7 (36.8%)	8 (42.1%)	2 (10.5%)	2 (10.5%)	0 (0.0%)

Destinations and classification

Review of destination records reveals important differences in the types of locations accessed by participants in each group. Trips recorded for the Medical Transportation group were overwhelmingly associated with healthcare-related destinations, including hospitals, physician offices, specialty clinics, imaging facilities, dental providers, and rehabilitation services. This pattern is consistent with the program design, which limited transportation support to medical purposes.

In contrast, destinations accessed by Wallet App participants reflected a broader range of daily activities and service needs. In addition to healthcare providers, participants used

transportation services to access grocery stores, retail establishments, charitable organizations, food assistance providers, community services, and other non-medical destinations. Examples include Walmart, Kroger, Genesis Benefit Thrift, Catholic Charities, Metrocrest Services, and the Dallas Galleria Mall. However, a substantial proportion of Wallet-supported trips remained healthcare-related.

Although the Social/Wallet group accessed a broader range of destination types than the Medical Transportation group, a substantial proportion of Wallet-supported trips remained healthcare-related. This pattern may reflect participants' continued reliance on transportation for essential medical needs, even when flexible transportation resources were available. Additional qualitative or survey-based evidence would be needed to determine how participants prioritized transportation resources and whether program understanding influenced destination choice.

To better understand these travel patterns, all recorded destinations were classified into functional categories based on their primary purpose, including healthcare, grocery and retail, community and social services, government services, dining and recreation, and other destinations. This categorization enables comparison of the types of activities supported by each transportation model and provides the foundation for subsequent spatial analyses examining destination clusters, travel patterns, and participant travel sheds. By moving beyond trip counts to consider where participants traveled and for what purposes, the analysis offers a more nuanced assessment of how flexible transportation resources may influence mobility and community participation. The coding strategy is included in **Error! Reference source not found.**.

Table 7 Destination Classification Scheme

Destination Category	Examples
Medical/Healthcare	Hospitals, physician offices, dentists, imaging centers
Grocery/Retail	Walmart, Kroger, Tom Thumb
Community & Social Services	Metrocrest Services, Catholic Charities, food pantries
Government	DMV, housing authority
Dining/Recreation	Restaurants, malls, craft stores
Other	Miscellaneous

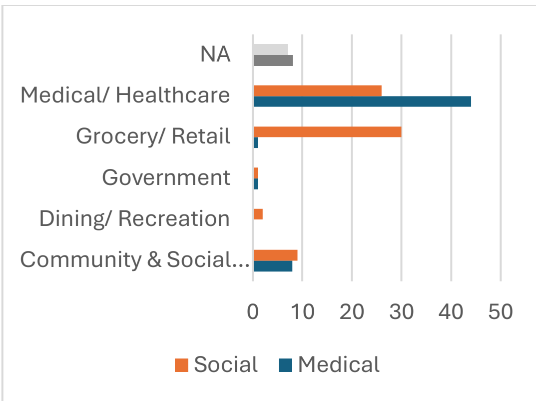


Figure 6 Distribution of Recorded Trips by Destination Category and Study Group

Error! Reference source not found. compares the number of recorded trips by destination category for participants in the Medical Transportation and Social/Wallet groups. The Medical group made 44 trips to medical and healthcare destinations, compared with 26 such trips among the Social/Wallet group, reflecting the program's emphasis on transportation for healthcare access. In contrast, the Social/Wallet group made 30 grocery and retail trips, whereas the Medical group recorded only 1 trip in this category.

Trips to community and social service destinations were relatively similar between groups (9 Social/Wallet vs. 8 Medical), while government destinations accounted for only 1 trip in each group. The Social/Wallet group also recorded 2 dining and recreation trips, whereas no such trips were observed in the Medical group. Participants with no recorded rides or uncategorized trips accounted for 0 and 8 observations in the Social/Wallet and Medical groups, respectively.

Error! Reference source not found. illustrates monthly trip patterns by destination category from April 2025 through March 2026. Because the figure combines both Medical and Social/Wallet participants, these descriptive trends should not be interpreted as causal effects of the intervention.

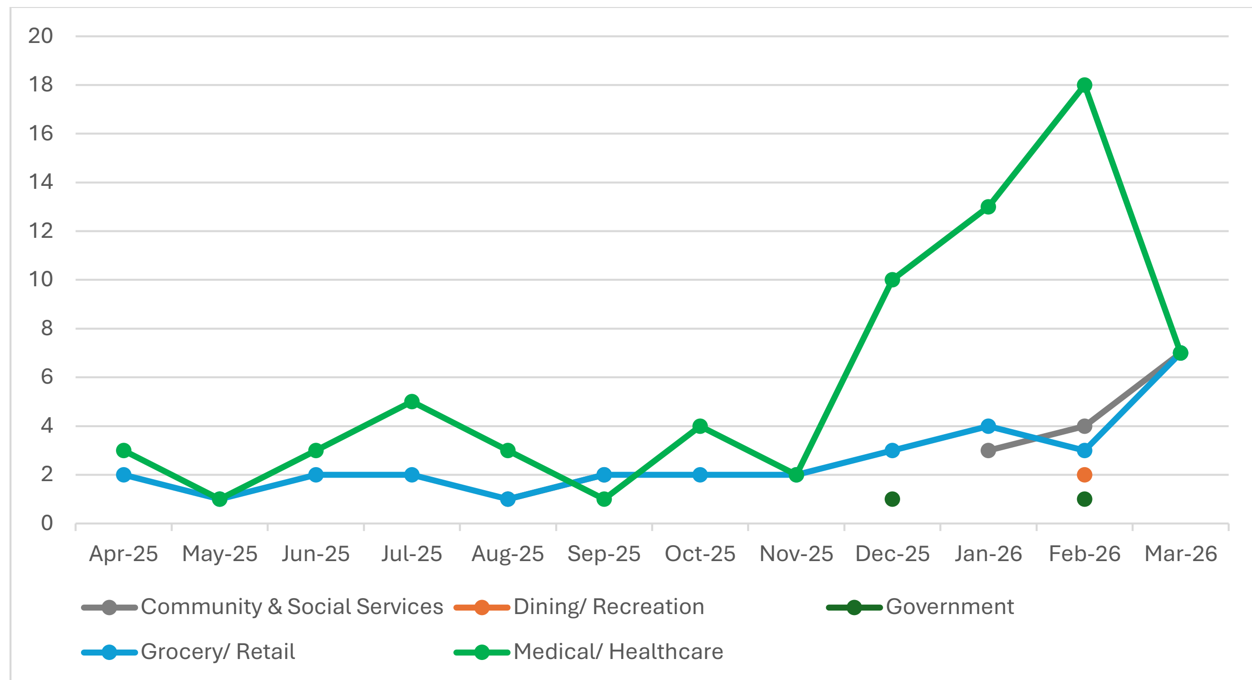


Figure 7 Monthly Distribution of Recorded Trips by Destination Category Before and During the Wallet Intervention (April 2025–March 2026)

Temporal Trends by Destination Categories

Network Routing and Mobility Footprint Analysis

While descriptive analyses of trip frequency and destination categories provide important insights into transportation utilization, they do not fully capture the spatial dimensions of participant mobility. To better understand how transportation resources influenced movement patterns and geographic access to services, a spatial analysis was conducted using participant home locations and recorded trip destinations.

Trips were stratified by treatment group (Medical Transportation and Social/Wallet) and by time period, distinguishing the pre-intervention period from the intervention period. This temporal stratification enables assessment of changes in mobility patterns following implementation of the Wallet transportation incentive while providing a comparable reference for participants receiving standard medical transportation services.

Two complementary spatial measures were evaluated.

- First, network-based routing analyses were used to estimate travel distances between participant residences and recorded destinations, providing an indication of the geographic extent of individual trips.

- Second, participant mobility footprints were characterized using minimum bounding geometry techniques (convex hull) to delineate the spatial area encompassed by recorded destinations.

Together, these analyses move beyond simple counts of trips or destination types to examine how transportation support may influence the scale and diversity of participants' activity spaces. Spatial network analysis was conducted using ArcGIS Pro 3.x and the ArcGIS Advanced Network Analyst routing engine.

The following sections compare travel distances and mobility footprints across treatment groups and time periods, with particular attention to whether access to flexible transportation resources was associated with broader patterns of spatial mobility and access to essential services.

Participant Trip Patterns and Selection for Spatial Analysis

Participant-level trip histories reveal substantial heterogeneity in transportation utilization across both study groups.

- In the Medical Transportation group, trip activity was concentrated among a relatively small number of participants, with several individuals recording frequent travel while nearly half of enrolled participants had no recorded trips during the study period.

- Among active Medical participants, pre-intervention trip totals ranged from 1 to 11 trips, while intervention-period totals ranged from 1 to 9 trips.

- The Social/Wallet group exhibited considerable variation in individual travel behavior, with some participants completing only a single trip and others recording 7 to 10 trips during the intervention period. Prior to the intervention, two Social/Wallet participants accounted for a large share of observed travel, recording 14 and 8 trips, respectively.

Across both groups, many participants did not utilize the transportation program during either the pre-intervention or intervention periods. Consequently, the spatial analyses focused exclusively on participants with at least one recorded trip, as route generation and mobility footprint estimation require both an origin and one or more destination locations (see **Error! Reference source not found.** and **Error! Reference source not found.** below). Participants with no recorded transportation activity were excluded because no travel paths could be reconstructed from the administrative records. Participant with ID 195751 belonging to the medical group was excluded from the analysis since no home address was provided.

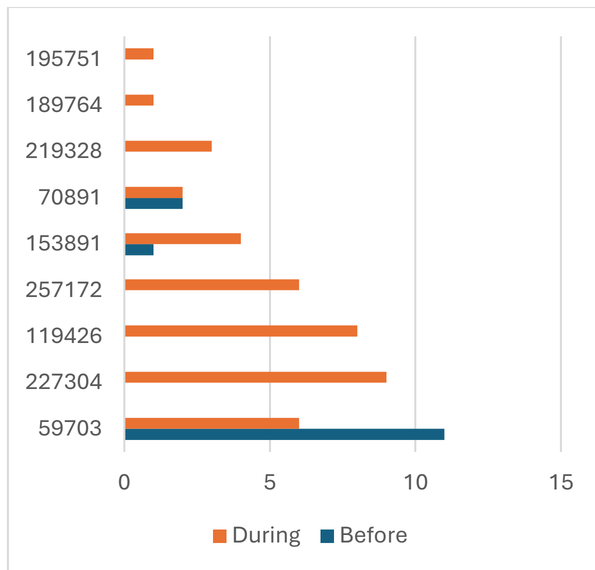


Figure 8 Participant-Level Trip Frequencies for Medical Transportation Participants Included in the Spatial Analysis

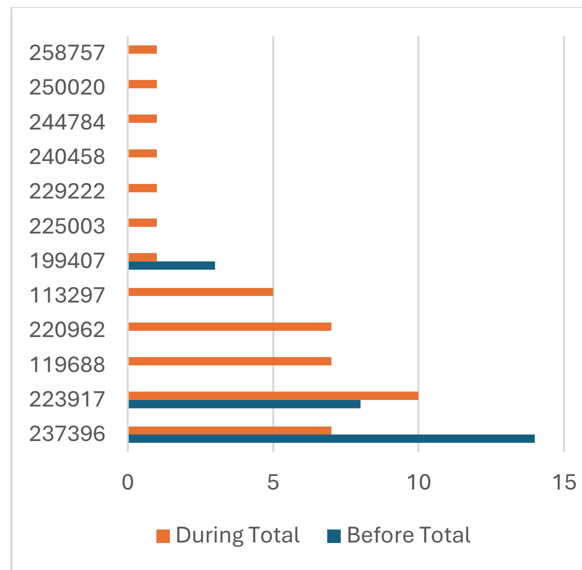


Figure 9 Participant-Level Trip Frequencies for Social/Wallet Participants Included in the Spatial Analysis

The distribution of trips also informed interpretation of the spatial analyses. Participants with numerous recorded destinations generated larger and more representative mobility footprints, whereas participants with only one or two trips necessarily exhibited limited observable activity spaces (see **Error! Reference source not found.**). While several participants completed only one or two trips, others made repeated use of the transportation program and consequently contributed more extensive travel trajectories and mobility footprints to the spatial analysis. Accordingly, route distance and minimum bounding geometry results should be interpreted as descriptive representations of recorded transportation use rather than comprehensive measures of participants' overall daily mobility.

Table 8 Trip Statistics for Participants Included in Routing Analysis

Group	Participants Included	Mean Trips per Included Participant	Median	Range
Medical – Pre	3	4.7	2	1–11
Medical – During	9	4.4	4	1–9
Social – Pre	3	8.3	8	3–14

Group	Participants Included	Mean Trips per Included Participant	Median	Range
Social – During	12	3.6	3	1–10

Key Findings of the Network Routing Analysis

To quantify the spatial extent of participant travel, network route analyses were conducted using geocoded residential locations and recorded trip destinations. For each recorded trip, the estimated travel distance between the participant's home and destination was calculated using the transportation network. Analyses were performed separately for the Medical Transportation and Social/Wallet groups and stratified by pre-intervention and intervention periods (see **Error! Reference source not found.** and **Error! Reference source not found.**).

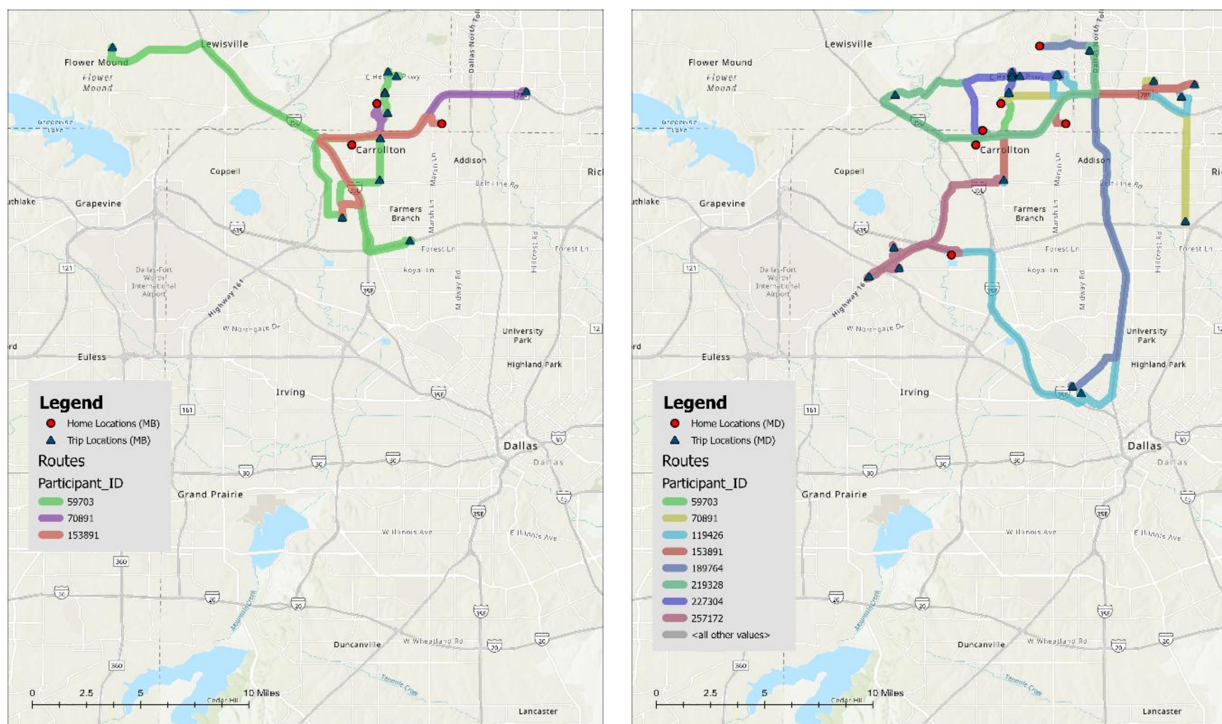


Figure 10 Medical Group Travel Patterns Before and During Intervention

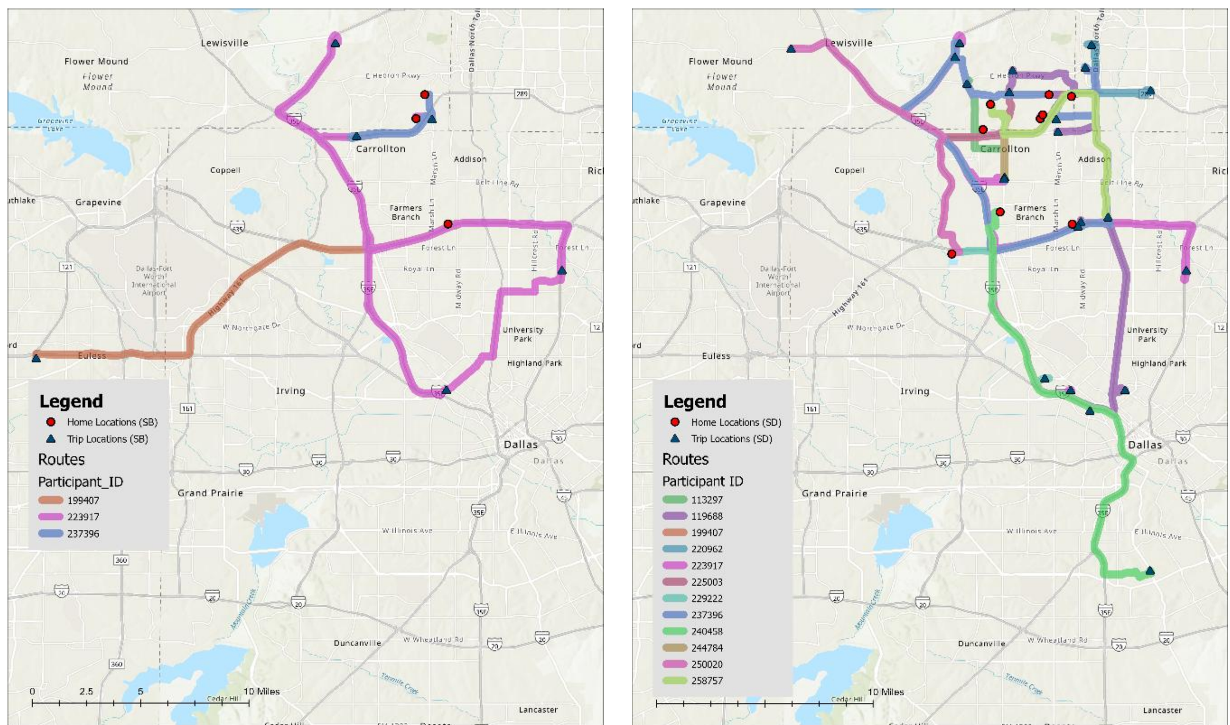


Figure 11 Social Group Travel Patterns Before and During Intervention

Individual participant data reveals high spatial variance within the groups (see **Error! Reference source not found.** and **Error! Reference source not found.**) :

- **Medical Group Trajectories:** During the intervention period, travel distances ranged from a minor 6.19 miles (ID: 59703) to an expansive **94.77 miles** (ID: 119426), reflecting highly specialized medical destination paths.
- **Social/Wallet Group Trajectories:** Extensive cumulative travel was recorded by participant 223917, who logged **113.32 miles** pre-intervention and **94.98 miles** during the intervention phase. Conversely, some participants used the app for localized trips as brief as 0.72 miles (ID: 199407).

These findings suggest that while transportation utilization was concentrated among a subset of participants, the geographic reach of services varied widely between individuals, underscoring the importance of participant-level spatial analyses.

Table 9 Summary of Network Route Distances by Study Group and Period

Group	Period	n	Mean (mi)	Median (mi)	Range (mi)
Medical	Pre-Intervention	3	27.98	10.21	9.05–64.68

Group	Period	n	Mean (mi)	Median (mi)	Range (mi)
Medical	Intervention	8	26.34	16.50	6.19–94.77
Social/Wallet	Pre-Intervention	3	47.37	20.02	8.77–113.32
Social/Wallet	Intervention	12	29.92	13.42	0.72–94.98

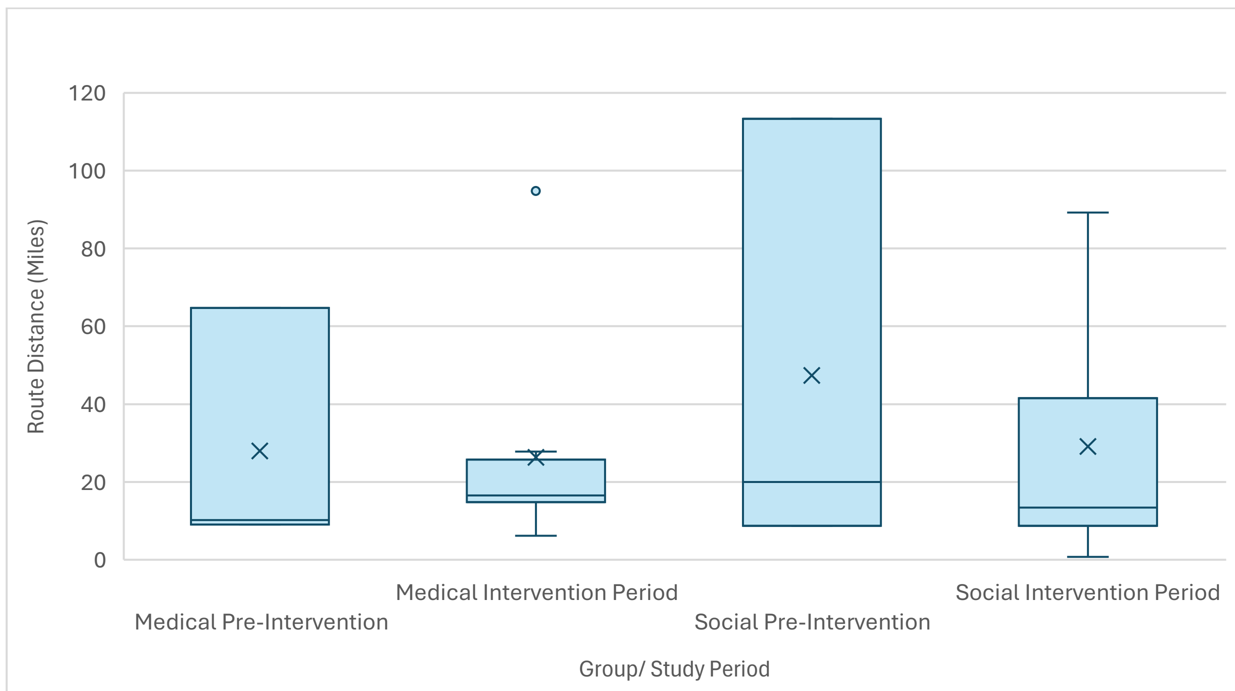


Figure 12 Distribution of Participant Route Distances by Study Period

Mobility Footprint Analysis (Minimum Bounding Geometry)

To map the actual realized geographic space utilized by participants, the study employed Minimum Bounding Geometry (MBG) techniques via Convex Hulls. This constructs the smallest possible polygon enclosing a participant's home anchor point and all recorded travel destinations.

Methodological Note: MBG was selected over theoretical service area modeling because it charts *observed behavior* rather than potential accessibility. This footprint analysis focuses heavily on the Social/Wallet group to track spatial expansions prompted by flexible incentives. To avoid degenerate geometry (lines or single points), calculations were strictly limited to active individuals with $\geq$ 2 unique trip destinations (producing at least 3 distinct spatial nodes when anchored to the home address).

The final list of participants included for the footprint analysis is in **Error! Reference source not found.**.

Table 10 Participants Selected for Mobility Footprint Analysis

Participant	Before Trips	During Trips	Eligible for MBG?
237396	14	7	Before & During
223917	8	10	Before & During
199407	3	1	Before only
119688	0	7	During only
220962	0	7	During only
113297	0	5	During only
Others (1 trip during)	0	1	No (insufficient distinct destinations)

Error! Reference source not found. illustrates participant-level mobility footprints for Social/Wallet participants during the pre-intervention period, while **Error! Reference source not found.** presents corresponding activity spaces during the intervention period. The resulting mobility footprints reveal considerable variation in the spatial extent and configuration of participants' observed travel. Participant 223917 exhibited the largest activity space in both periods, encompassing destinations distributed across multiple communities in the Dallas metropolitan area. In contrast, participant 237396 maintained a relatively compact activity space centered around Carrollton during the pre-intervention period but demonstrated a substantially larger mobility footprint during the intervention period, reflecting travel to a more diverse set of destinations. Participant 199407 exhibited a more limited activity space during the pre-intervention period and did not meet the inclusion criteria for comparison during the intervention period due to insufficient destination observations.

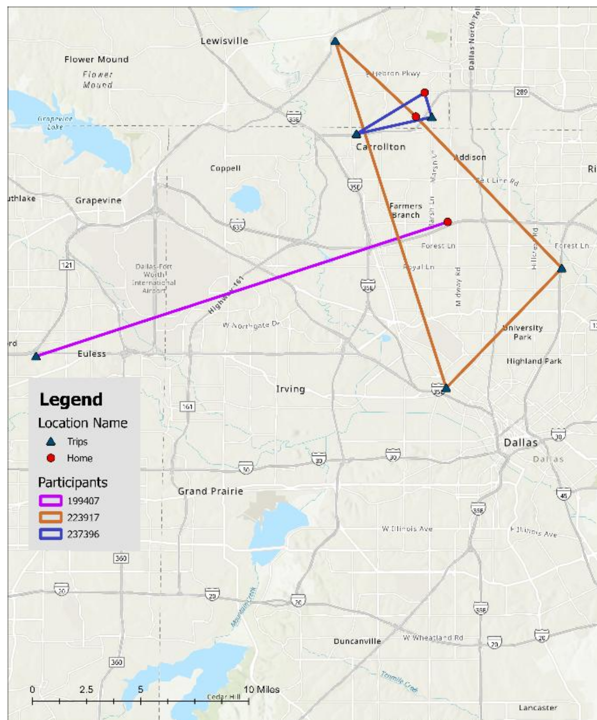


Figure 13 Mobility Footprint Analysis of Select Social/Wallet Group Participants (Pre-Intervention)

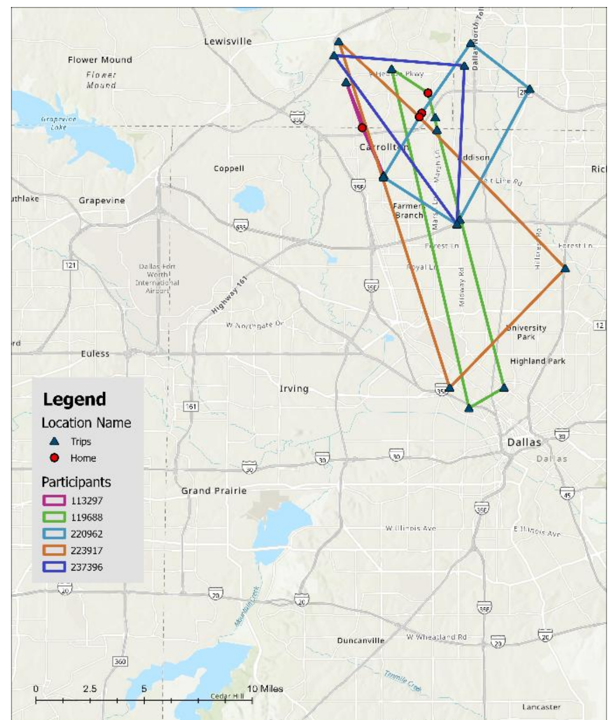


Figure 14 Mobility Footprint Analysis of Select Social/Wallet Group Participants (During Intervention)

Quantitatively, the estimated activity space for participant 237396 increased from approximately 0.00017 mi^2 before the intervention to 0.00179 mi^2 during the intervention period, representing more than a tenfold increase in observed geographic extent. In contrast, participant 223917 maintained a consistently large activity space across both periods, with an estimated area of approximately 0.00470 mi^2. Additional participants, including 113297, 119688, and 220962, generated measurable activity spaces only during the intervention period because they lacked sufficient pre-intervention destination records.

Table 11 Activity Space Areas (Minimum Bounding Geometry) for Social/Wallet Participants

Participant ID	Pre-Intervention Area (sq mi)	Intervention Area (sq mi)	Change
113297	–	0.000019	New activity space
119688	–	0.001933	New activity space
199407	0.000002	–	Not comparable*
220962	–	0.002224	New activity space

223917	0.004701	0.004701	No meaningful change
237396	0.000169	0.001792	**Expanded (~10.6×)**

Given the limited number of participants meeting the inclusion criteria and the exploratory nature of the analysis, these findings should be interpreted descriptively rather than inferentially. Nevertheless, the participant-level mobility footprints demonstrate that transportation behavior following implementation of the Wallet program was heterogeneous, with some individuals exhibiting notable expansion in observed activity spaces while others maintained relatively stable travel patterns. These results suggest that the primary value of flexible transportation resources may lie in enabling individualized mobility responses and access to a broader range of destinations rather than producing uniform changes across all participants.

Conclusion and Key Takeaways

The spatial and temporal analysis of the Metrocrest Service's Transportation Program's administrative dataset provides an objective, behavioral evaluation of how flexible financial incentives alter the mobility patterns of low-income older adults and individuals with disabilities. By shifting the analytical lens from subjective survey self-reports to real-world trip routing, these findings clarify the operational impacts of transitioning from a medical-only transit model to a flexible digital wallet application.

Key Takeaways

- **Incentives Expand Program Engagement, Not Individual Trip Volumes:** The Social/Wallet incentive model successfully lowered the barrier to entry, achieving a higher overall participant utilization rate (63.2%) compared to the standard medical control group (52.9%). However, the average number of trips per active user remained remarkably stable across both tracks (5.33 for Wallet vs. 5.78 for Medical). This indicates that flexible transit funding acts primarily as an enrollment catalyst, expanding *who* utilizes the service rather than triggering an unsustainable surge in individual ride volume.
- **The Incentive Facilitates "Layered Mobility" Without Displacing Healthcare Access:** When freed from medical-only restrictions, Wallet App participants immediately built a highly diversified community footprint, logging 30 grocery/retail trips and 2 dining/recreation journeys. Crucially, this diversification did *not* come at the expense of health management: Wallet users still dedicated a substantial portion of their allocation (26 trips) to healthcare destinations. Flexible

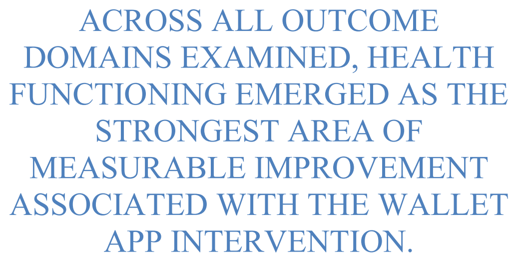
transportation resources allow high-need individuals to layer essential daily living activities on top of regular medical care.

- **Travel Demands and Spatial Reach are Highly Individualized:** Network routing analysis exposed massive heterogeneity in travel behavior across both groups. During the intervention period, over-the-road travel distances ranged from ultra-localized errands of 0.72 miles to sprawling regional trajectories maxing out at 94.98 miles. This vast range indicates that participant transportation needs are deeply unique and heavily dependent on specific residential anchors and service requirements.
- **Flexible Funding Unlocks Exponential Activity Space Expansion for Select Users:** Minimum Bounding Geometry (MBG) modeling demonstrated that flexible incentives directly translate into broader geographic autonomy for active users. While some individuals maintained stable travel baselines, others experienced dramatic, documented expansions in their realized daily activity space. For instance, participant 237396 saw a tenfold increase in observed activity area, expanding from 0.000169 mi^2 pre-intervention to 0.001792 mi^2 during the active period as they accessed a wider array of community resources.

Implications for Practice and Policy

Ultimately, the spatial data underscores that a single, rigid transportation model cannot effectively serve a diverse, vulnerable population. The primary value of the digital Wallet application lies in its capacity to support individualized mobility responses. Rather than forcing participants into fixed, linear medical pathways, the flexible incentive structure empowers older adults to dynamically scale their travel footprints to match their personal health, retail, and community needs

9. Cross-Cutting Insights



ACROSS ALL OUTCOME DOMAINS EXAMINED, HEALTH FUNCTIONING EMERGED AS THE STRONGEST AREA OF MEASURABLE IMPROVEMENT ASSOCIATED WITH THE WALLET APP INTERVENTION.

Across the survey domains, mobility improvements helped participants experience gains in several areas, particularly health functioning and emotional well-being, but these gains did not translate into improved housing stability or financial security. Findings suggest that the Wallet App program increased access to transportation and services but did not address the broader structural challenges participants faced related to income, housing affordability, and financial vulnerability. Participants in the Wallet group entered the program with lower health functioning scores and greater social and economic vulnerability than the Control group, indicating that the program successfully reached individuals with substantial unmet needs. Despite these challenges, Wallet App participants experienced improvements in self-reported health functioning and reductions in negative emotional experiences during the program period, suggesting that transportation access may contribute to improved health and daily functioning for older adults and individuals with disabilities.

Although trip-level motivations require additional investigation, it is possible that participants used Wallet App rides to supplement healthcare-related transportation needs that were not fully met through existing services. If so, the observed improvements in health functioning may reflect increased access to medical appointments, pharmacies, rehabilitation services, or other health-supporting activities. At the same time, housing and financial stress remained some of the strongest challenges affecting participants' overall well-being. Compared to the Control group, Wallet App participants experienced increased housing cost burden and a sharp rise in missed rent or mortgage payments during the study period. Participants also reported a reduced ability to absorb financial stressors, including home repairs, utility costs, and other unexpected expenses. These findings suggest that while transportation programs may improve mobility and access to services, financial instability continues to limit participants' long-term well-being and ability to sustain gains in other areas.

An important interpretation emerging from the evaluation is that transportation access may function as a mechanism for revealing unmet needs rather than resolving them. As participants gained mobility and increased interaction with healthcare providers, retailers, community services, and daily activities, they may have become more aware of financial challenges, deferred maintenance needs, housing concerns, and unmet service needs that previously remained unaddressed. This finding suggests that transportation programs may serve as an entry point to identify broader vulnerabilities and connect participants with additional supports. Spatial analysis findings suggest that participants used flexible transportation to access grocery stores, food assistance providers, charitable organizations, and community services in addition to healthcare destinations. These patterns indicate that transportation supports a broader ecosystem of daily living activities and may help participants address unmet needs that extend beyond medical care alone.

Key cross-cutting findings include:

- Mobility improvements were associated with better health functioning and emotional well-being
- Transportation access increased independence and access to daily activities
- Increased access did not reduce broader financial or housing instability
- Wallet App participants entered the program with greater baseline vulnerability
- Housing affordability and financial stress remained major barriers to long-term stability
- Transportation programs may be most effective when paired with housing, financial, and supportive service interventions
- Flexible transportation expanded access beyond healthcare, enabling participants to reach grocery stores, food assistance providers, charitable organizations, and community services that support daily living needs

TRANSPORTATION FLEXIBILITY EXPANDED ACCESS TO COMMUNITY RESOURCES AND DAILY LIVING NEEDS BEYOND HEALTHCARE DESTINATIONS.

DESTINATION DIVERSITY, RATHER THAN TRIP FREQUENCY, DISTINGUISHED WALLET PARTICIPANTS AND MAY HELP EXPLAIN IMPROVEMENTS IN HEALTH AND WELL-BEING.

10. Implications for Nonprofit Practice and Policy

Findings from the pre–post evaluation suggest that the Wallet incentive structure is a promising mechanism for increasing transportation independence and improving functional health among older adults and individuals with disabilities. The evaluation suggests that transportation programs should be viewed as one component of a broader system of supports. Mobility interventions can improve access and functional well-being, but outcomes remain heavily influenced by housing affordability, financial vulnerability, health status, and social support networks. Participants in the Wallet group demonstrated improvements in mobility, emotional well-being, and health functioning, suggesting that transportation incentives can help reduce barriers to accessing healthcare, daily activities, and community resources. At the same time, the findings indicate that transportation alone is insufficient to address broader challenges related to housing instability, financial stress, and social isolation. The program's underlying theory of change—that increasing access to social and non-medical trips improves overall well-being—was partially supported by the data. Participants reported reductions in negative feelings and improved functioning, but changes in social connection and financial stability were more limited or mixed. These findings suggest that mobility improves access and autonomy, but broader well-being outcomes remain strongly shaped by economic and social conditions.

The evaluation also highlights several practical considerations for nonprofit program design. While the Wallet model expanded transportation access, some participants experienced barriers related to digital literacy, physical functioning limitations, and transportation satisfaction. Increased dissatisfaction with transportation among Wallet users may reflect higher expectations, scheduling challenges, or service reliability issues as participants became more engaged with the system. Future program refinements should consider simplified enrollment and app navigation, hybrid phone-and-app scheduling systems, multilingual supports, and additional assistance for participants with limited technology experience or mobility impairments. The findings further suggest that transportation incentives may be most effective when paired with intentional social engagement opportunities rather than transportation access alone. For example, transportation incentives tied to senior center programming, peer activities, volunteer opportunities, or community-based social events may strengthen the relationship between mobility and meaningful social connection.

Baseline findings demonstrate that Metrocrest Service participants face interconnected challenges across transportation, housing, health, and financial well-being. Housing and financial stress emerged as the strongest factors affecting outcomes across all areas of the study. As a result, nonprofit transportation programs should be more formally integrated with housing assistance, home repair programs, benefits navigation, and social service coordination. The findings suggest an opportunity for Metrocrest Services to develop coordinated referral systems that connect transportation participants with additional support when indicators of vulnerability emerge. For example, participants reporting severe housing affordability pressure, missed rent payments, elevated PHQ-9

scores, or inability to afford utilities could be referred for case management or housing stabilization services during program participation. Transportation programs may therefore function not only as mobility interventions, but also as early identification points for broader social and health-related needs.

The evaluation also raises important questions about how nonprofit organizations design transportation programs for high-need populations. The Wallet group entered the program with lower health functioning and greater vulnerability than the Control group, suggesting the program successfully reached participants with significant unmet needs. However, participants with greater mobility and health challenges may require more support to achieve stronger outcomes. Future programs should consider tiered support models based on participants' needs, mobility limitations, and risk of social isolation. Targeting transportation-isolated neighborhoods within the Carrollton and Dallas service area may also improve program effectiveness for older adults facing limited mobility options and high housing cost burdens.

Operationally, the study highlights several considerations for program continuation and expansion. Reliable Wallet app data and consistent trip logging are important for tracking transportation use and participant outcomes over time. The findings also suggest the need for more flexible follow-up procedures for older adults with health and mobility limitations, particularly given attrition in the Control group.

Future program implementation should consider:

- Improving data collection and trip tracking procedures
- Reducing survey burden for participants
- Expanding staff capacity for coordinated referrals and case management
- Strengthening partnerships across transportation, housing, health, and social service programs
- Providing additional technology and digital literacy support for participants

As transportation programs become more integrated with other supportive services, nonprofits may require additional staffing, referral systems, and technology infrastructure to effectively coordinate participant care and services across programs.

12. Conclusion

This evaluation examined whether financial transportation incentives delivered through the Metrocrest Services Transportation Program produced measurable improvements in mobility behavior, health functioning, housing stability, and social connection among low-income elderly and disabled residents in the Carrollton and Dallas

service area. Perhaps the most important finding from this pilot evaluation is that participants receiving Wallet App transportation support demonstrated improved health functioning over the study period. While additional research with larger samples is needed, these findings provide promising evidence that transportation investments can generate benefits extending beyond mobility itself and may contribute to healthier, more independent aging.

The baseline data established a clear picture of the population served: individuals managing chronic illness and physical functional limitations, living in predominantly rental housing with serious maintenance needs, facing severe financial constraints, and experiencing meaningful — if varied — social isolation. The Wallet group entered the program with significantly lower self-rated health functioning than the Control group, a pre-existing difference that frames all subsequent outcome comparisons.

Regardless of post-test outcomes, this evaluation contributes to a growing evidence base on transportation equity interventions for underserved older adults and disabled populations — a domain of direct relevance to public administration practice in nonprofit and government contexts. The intersection of mobility, housing, mental health, and social connection observed in this sample reinforces that effective service delivery for this population requires integrated, cross-sector approaches rather than single-domain program models. Metrocrest Services' willingness to subject this pilot to rigorous evaluation reflects a commitment to evidence-based practice that should inform future program investment and policy advocacy in the region.

Appendices

Appendix A. Pre-Test Survey Report

Appendix B. Post-Test Survey Report

Appendix C. Survey Instruments